



A MONTHLY JOURNAL DEVOTED TO THE ELEVATOR AND GRAIN INTERESTS.

PUBLISHED BY
MITCHELL BROS. COMPANY,
(INCORPORATED.)

VOL. VII.

CHICAGO, ILLINOIS, DECEMBER 15, 1888.

No. 6.

SUBSCRIPTION PRICE,
ONE DOLLAR PER ANNUM.

THE PRINZ PATENT IMPROVED GRADER AND SEPARATOR.

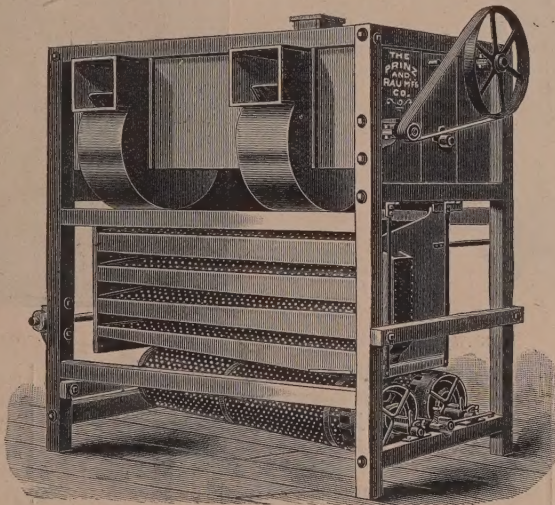
It is a fact well known to the trade in general that clean wheat or barley finds a more ready sale than that mixed with small and unsound kernels, as well as oats, peas, corn, bits of straw, cockle, small seeds, etc. For the purpose of removing these foreign substances, various appliances have been invented, some of which have been operated with more or less success, while others have proved failures. Many machines will clean the grain thoroughly, but the trouble is in making a satisfactory separation. Moreover, some machines do not extract the broken kernels in barley, which is a very essential thing to do, while with wheat the cockle and small peas are left in. Besides these defects, some machines do not have the necessary capacity to do the work of a large establishment. Mr. Faustin Prinz, an inventor whose name is familiar to the grain-handling world, believes he has solved the problem involved by the invention of a machine of the required capacity and characteristics to do the work in a satisfactory manner.

The cut on this page shows the machine in question which is known as the Prinz Patent Improved Grader and Separator. Since its introduction it has met with success and such expressions of satisfaction that the inventor has felt flattered, to say the least. The machine is very simple, durable, and easy to operate. It runs lightly, and requires very little power. The machine is manufactured under the personal supervision of the inventor, using only selected hardwood and the best of iron and steel. It is put together by skilled mechanics with a view to durability and ease of access to all its parts. The machine is well adapted for general use in flour mills and grain elevators, as well as for the purposes of barley dealers, maltsters, etc.

So much for the general features of the machine. To particularize: On top is a scalper through which the grain passes. This scalper is constructed with a perforated circular conveyor bottom, the conveyor consisting of cast iron flights, with brushes of a very substantial material attached to keep the perforations perfectly open. This conveyor also distributes the grain over the whole width of the machine, which is from three to ten feet, according to capacity, and discharges on the end all substances larger than the perforations. The grain then enters into a sliding spout, which gives the necessary speed to enter the first suction chamber, a device heretofore unknown, we believe, to American inventors. This suction is claimed to be the most perfect arrangement ever known to extract all the light substances. From this it enters another sliding spout into the second suction chamber to receive the last and stronger suction, which takes out heavier substances, such as oats, seeds, etc. Both of these sections are under perfect control of the operator, who is through them enabled to take out as little

or as much as he may wish. Each of these suctions discharges independently.

From the last suction chamber the grain enters the divider, which is very ingeniously arranged. It will always divide the grain, no matter how heavy a feed there is on, and without any attention, into two equal streams onto the two shakers and graders. These novel constructions are inventions of Mr. Prinz. They work on an entirely new principle, and are driven by eccentrics with opposite motion, which makes the machine run very easily and noiselessly, and spreads the grain very thinly, so that every kernel has access to the surface of the shakers, of



THE PRINZ PATENT IMPROVED GRADER AND SEPARATOR.

which there are two sizes, large and small, in order to grade the grain.

From the divider the grain goes first on the fine sieve, over which the clean, large kernels, all peas, corn, etc., pass then to the second or coarse sieve, which will allow only the clean grain to pass through, into the discharge spouts, and the larger substances are cast off into the screenings pile. Through the fine sieve all small grain, also broken kernels, cockle, etc., pass through into cockle reels or cylinders. These reels are of a new type, very substantially made from heavy sheet steel, and they make a perfect separation of all seeds and cockle from wheat, and all small and broken substances from the small, sound barley without waste to either. The grain so cleaned can be discharged either with the large grain or separately, while all other substances are discharged on the screenings pile.

This machine is also built without the cockle reels. The manufacturers call the special attention of elevator and grain men to the construction of the shakers and sieves

in connection with this machine, and their guarantee of greater capacity with less power. This machine is manufactured by THE PRINZ & RAU MFG. CO., 659-663 East Water street, Milwaukee, Wis., who will be pleased to give readers all desired information in regard to it.

WHEAT IN THE NORTHWEST.

There were in country elevators in Minnesota and Dakota Dec. 1, this year, 8,625,000 bushels wheat, against 20,100,000 bushels Dec. 1 last year. The amount now in such elevators is an increase of 2,870,000 bushels during November, caused by a free movement during that month in the northern sections. A year ago the increase in country stocks in November was approximately 5,000,000 bushels. The receipts in Minneapolis during November this year were 6,627,728 bushels, and in Duluth 647,984, a total of 7,275,712 bushels. A year ago the receipts in Minneapolis were, in November, 7,506,320 bushels; in Duluth for the same month, 4,026,267; a total of 11,532,587 bushels. That shows a total decrease in the terminal receipts at both places this year of 4,256,875 bushels from the receipts of last year for November.

Stocks in country elevators in the state and territory increased this year 2,870,000 bushels in November. Last year 5,100,000 for the same time. The receipts here and at Duluth, with the increase of country stocks, substantially measure the comparative farm movement for that month in the two years. The receipts at Minneapolis and Duluth this year were 7,275,712 bushels; increase in country stocks for the month, 2,870,000, making the total 10,145,712 bushels, against a total country increase and Minneapolis and Duluth receipts last year of 16,632,587 bushels, which shows a decrease in farm movement of 3,486,875 bushels this year below November last year, or a decrease of 39 per cent. from farmers' bins. By taking the figures of elevator companies as to the decrease in the purchases for the month of November this year from purchases for the same month last year, they seem to show a falling off this year of about 42 per cent. The decrease in the far North is about 50 per cent., and varies considerably in different sections. The high prices paid here brought considerable wheat in from Northern Iowa, and more than usual from Southern Minnesota and Dakota. It appears to have been the large area drained for shipment to Minneapolis this year from the South that accounts for the small discrepancy in the different percentages of decrease of farm deliveries between 39 per cent. and 42. By making the allowance the 42 per cent. decrease in movement from farmers' granaries in November this year would be nearly correct.

Hutchinson finds his commission business embarrassing his individual operations, so they say.

A NEW THREE-REDUCTION ROLLER FEED MILL.

The establishments where feed is ground are numbered by thousands in this country, and they include besides flour mills a large number of elevators, stock farms, and the like. The reader probably need not be told that rolls have grown into wide and increasing use in flour mills, and the same may be said of feed mills also, numerous advantages being claimed in the direction of capacity, evenness of work, and the doing away with stone dressing. We show on this page a perspective and a sectional cut of a new Three Reduction Roller Feed Mill, the invention of A. F. Dawson, which has already been largely introduced, and for the excellence of whose work many users vouch.

The cross section of the mill shows the position of the rolls relatively to each other, and it will be seen that the rolls are so arranged that the mill makes three separate and distinct reductions between the rolls.

The hopper is of the ordinary size and shape, having an oscillating bottom which feeds the stock in a broad

SMITH MIDDINGS PURIFIER Co. of Jackson, Mich., who have acquired a reputation for the thorough construction of the machines of their manufacture, and is already in extensive use. The manufacturers will give all desired particulars to those who will write for them.

SALES OF SAMPLE GRAIN.

Grain of all kinds is sold by sample to so large an extent in this grain market that it is very important when the grain is being loaded for shipment that it should be thoroughly mixed, so that it will run entirely alike throughout the car. It is a common impression on the part of shippers that if grain has been run over two or three times it must necessarily become thoroughly mixed. We often find, however, that when this has been done the grain is uneven in quality, having manifestly run over in layers, which have only been reversed by handling; and we conclude that mixing can only be effected either by running separate streams together or by shoveling the grain over.

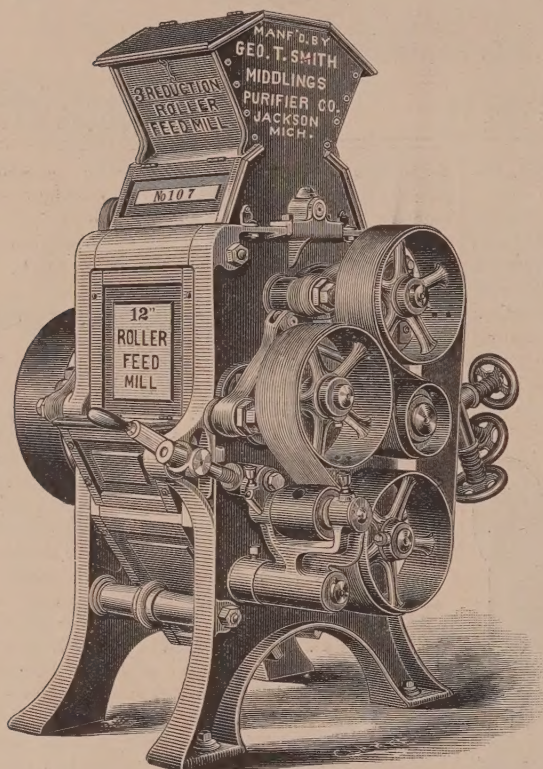
the proportion of each quality contained in the car. The sample is as liable to be below the average in quality as above, and in the former case the grain would necessarily be sold below its real value, and delivered without the variation in quality being discovered by the seller.

The grading of grain by the inspector has no influence on price when sold by sample in this market, buyers and sellers being governed wholly by their own judgment as to the merits of the grain as represented by the sample.—*Milwaukee Letter.*

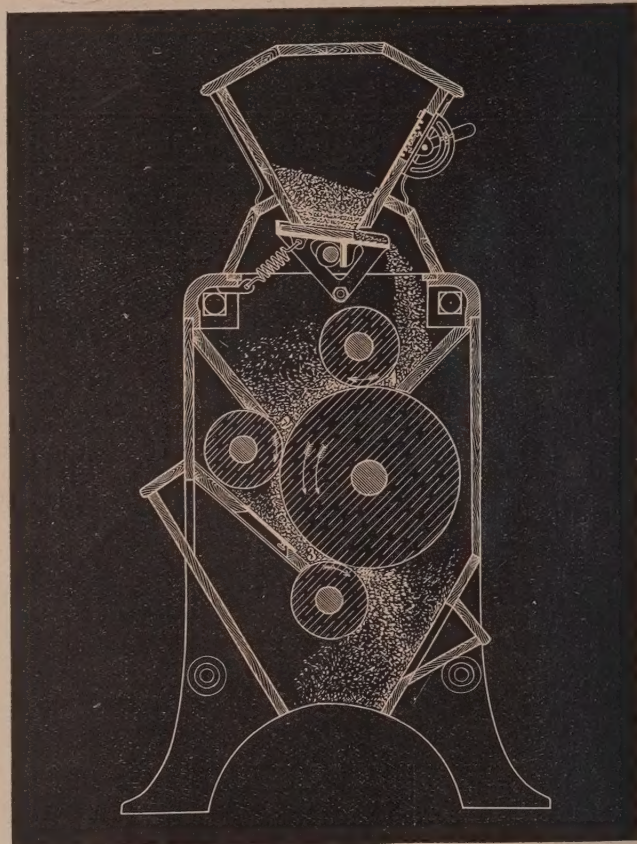
GRAIN CONTRACTS ON THE NEW YORK EXCHANGE.

On the Produce Exchange interest was revived in the question of reducing the size of wheat contracts from the 8,000-bushel limit which is now current. Two plans are suggested; one to reduce the minimum size of a contract to 5,000 bushels, and the other to make 1,000 bushels the smallest contract.

As a rule, the option brokers, a large number of whom



PERSPECTIVE VIEW OF FEED MILL.



CROSS SECTION OF FEED MILL.

and even stream to the rolls. A feed gate, operated by the small lever shown on the front of the illustration, regulates the flow of stock from the hopper. The grinding part consists of four rolls, one 14 and two 6 inches in diameter, running in the relative positions indicated by the four pulleys in the illustration, the large roll being in the center. These rolls do not vary in diameter for the different sizes. The adjustments shown are such that the feed can be ground to any required degree of fineness, or simply granulated, according to the demands of the trade to be supplied.

The drive pulley has a diameter of 24 inches, and is designed to be run at a speed of from 475 to 500 revolutions. It can be driven by a belt from below or above, according to circumstances, and only one drive belt is required for each machine.

This new feed mill is built in four sizes. In the smallest size the rolls are 8 inches in length; in the second, 12; in the third, 18; and in the fourth, 24 inches. The diameter of the rolls is the same in all sizes—large rolls 14 inches, small rolls 6 inches. The capacity of the machine varies from 30 bushels per hour for the 8-inch mill to 80 or 100 bushels for the 24-inch mill. The machine is very strong and heavy, is constructed of the best material and in the most thorough manner, and none of its parts are liable to get out of repair or to break. Only one belt is required from the mill shaft, the three slow-running rolls being driven from the fast roll.

This machine is made by the well-known GEO. T.

When grain is sold by sample, if there is any variation in quality from the sample sold by when unloaded from the car, the buyer rejects it; or, he may take such portion of the grain as is equal to or better than the sample and reject the remainder. In case the market advances, pending delivery, the buyer demands the fulfillment of the contract by the delivery of the specified quantity of grain equal to sample, and the seller is held liable for any loss arising from procuring and delivering it; or, if the buyer can make use of the grain tendered, a settlement may be effected by making a suitable allowance on the price sold at to cover the intrinsic difference in value. The buyer cannot be compelled, however, to accept anything different from what he has contracted for, even at an allowance for difference in quality; and hence, if the market declines pending delivery, the grain is liable to be refused entirely if not equal to sample, and it has to be re-sold, the loss from decline in the market falling wholly upon the shipper.

In case of a dispute between the buyer and seller as to whether the grain is equal to sample, the inspector of sample grain is called upon to inspect it, and if pronounced by him equal to the sample sold by, the buyer is required to accept it. Should the latter refuse to do so, the grain is re-sold for his account, and he is held liable for any loss resulting therefrom.

It is difficult, even with utmost care, to obtain a true average sample of a carload of grain that varies in quality, as it is impossible to determine, even approximately,

were questioned on the subject, favored the reduction in the size of the contract, and warmly advocated immediate action in order to influence the speedy adoption of the plan. Under the present plan, it is urged, an operator who has not a large bank account cannot trade on the Produce Exchange, and should the new system be adopted it is predicted that the volume of business on the Exchange will be very materially increased. A very large amount of business in small lots, it is claimed, is sent to Chicago by New York brokers; and it is argued that any movement that will tend to keep the New York business in New York City should receive the hearty support of the New York trade. With the present contract, 8,000 bushels, each $\frac{1}{4}$ c. fluctuation in the market means \$10, and when the market is at all excited this is a very hazardous speculation, especially to those doing business on limited margins.

On the other hand, there is considerable opposition manifested to the reduction, particularly among wheat shippers and receivers. The present size of the contract was established because 8,000 bushels is the capacity of a canalboat load of wheat, and receivers claim it would be inexpedient—certainly very troublesome—to sell, say, 5,000 bushels out of a boatload, and then have the balance on hand.—*N. Y. Produce Exchange Reporter.*

Manitoba has elevator capacity for nearly 7,000,000 bushels of wheat, most of which is at Fort William.

THE SIOUX CITY FOUNDRY AND MACHINE WORKS, AND THE SIOUX CITY CORLISS ENGINE.

This company originally did business under the name of J. P. Dennis & Co., beginning business in the year of 1871, and doing a general jobbing business up to the year of 1884, at which time the works were incorporated with Mr. J. P. Dennis, deceased, as the president. During the succeeding years the firm has been doing a large and growing business by reason of the additional facilities and improvements introduced at the time of the incorporation. The works are among the best in the Northwest, and for years have been supplying a large extent of territory tributary to Sioux City. At the time of the incorporation they commenced the manufacture of Corliss Engines, and have built a large number, furnishing them to various branches of business throughout the Northwest. These engines are very favorably known to the trade.

having been thrown out to make place for any other make of engine.

The firm have also in their employ as mechanical superintendent Mr. H. J. Westover, also formerly connected with Russell & Co., as mechanical engineer, and who previously held an important position in the engineering department of E. P. Allis & Co. of Milwaukee, builders of the Reynolds-Corliss Engine.

It has been the aim of the management to increase in every way possible the efficiency of every department, and during the past six months extensive improvements and additions have been made to the machinery and equipments in the different departments. They have now one of the best equipped pattern shops in the West, all of the tools being new and of the most improved design. They have also equipped a large drawing room and a large salesroom for the display of the goods of their own manufacture, also those for which they are the general Western agents.

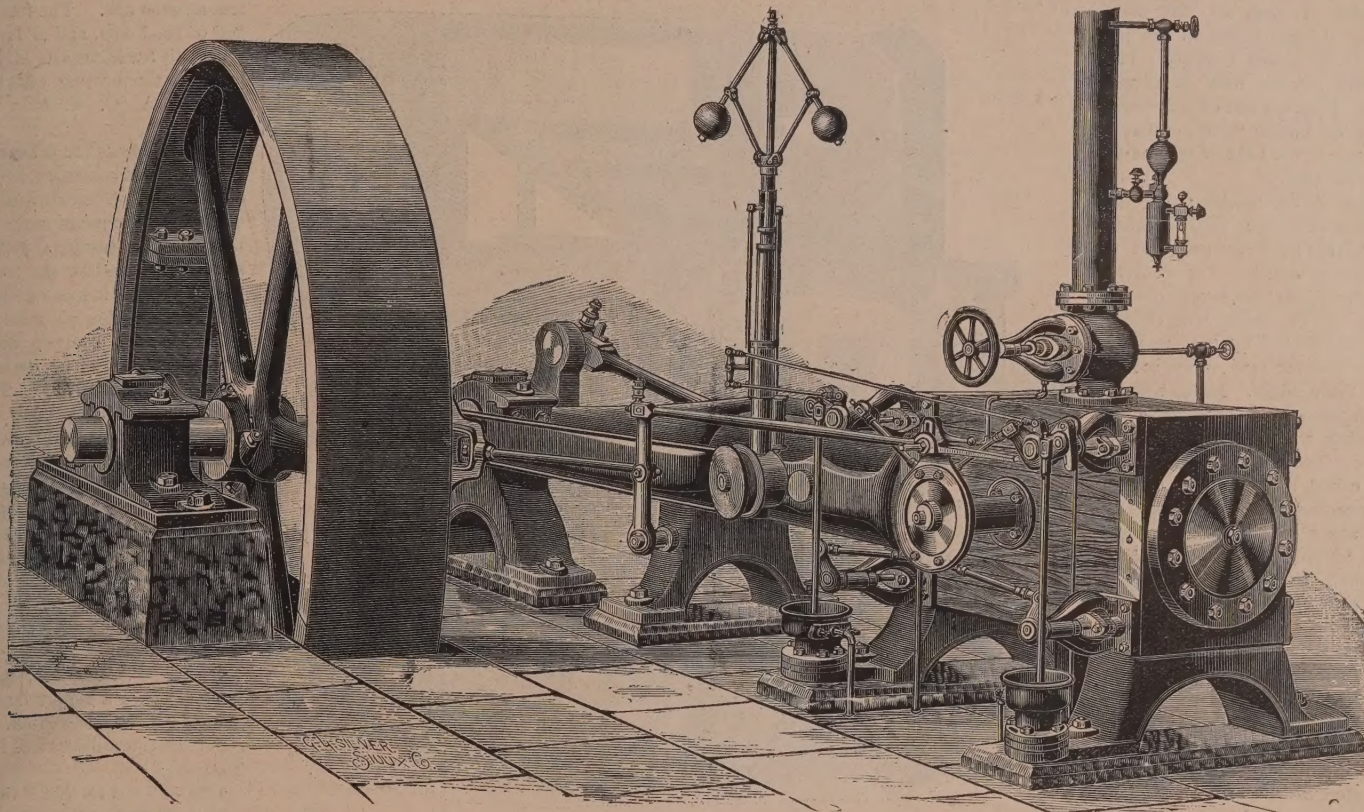
Extensive improvements have been made in both boiler shop and machine shop by the addition of new heavy machinery especially adapted to the line of work they have

Engines. They also carry in their salesroom a stock of belting, packing, brass goods and steam and mill supplies, generally being able to fill all orders for the same on short notice.

While much of the time during the past summer has been spent in improving the works and putting them in shape suited to their special business, they have, in addition, furnished a large number of outfits for driving grain elevators, electric lighting plants, flouring mills, etc., and are prepared at any time to furnish bids on such specifications as may be submitted for the complete equipment of motive power plants from 1 to 500-horse power; also steam boiler plants alone of any size or capacity for water works stations and the like. They have recently issued some new printed matter descriptive of the new goods they manufacture and handle, which will be sent on application.

GOVERNMENT CROP REPORT FOR DECEMBER.

The returns of farm prices to the Department of Agriculture emphasize the year's averages in production, nota-



THE SIOUX CITY CORLISS ENGINE.

In December last the works suffered, by death, the loss of their former president, Mr. J. P. Dennis, who was the mechanical manager, and to whose untiring energy the firm owed a large measure of its success. At that time, upon full consideration of the situation, it was deemed advisable to extend the scope of the works by the addition of men especially skilled in steam engineering, and at that time Mr. C. M. Giddings, M. E., for several years superintendent of the engineering department for Russell & Co., engine builders, Massillon, Ohio, took an interest in the company and accepted the position as general manager, selling to the company the shop right for the manufacture of his designs and patented improvements of an engine well known to the trade as the "Russell" Single Valve Automatic Engine. During the four years that this engine has been upon the market in has gained a wide reputation for excellency and efficiency, there now being over 250 of these engines in use in all parts of the country in all classes of business, driving the dynamos of nearly every electric lighting system in the country, establishing beyond a doubt their excellence. The firm is now building a full line of sizes of this popular engine, embodying such improvements as have been suggested by five years of actual experience in building and operating the same. These improvements will consist in greater weight, strength and stiffness of beds; also in improvements in the valve motion. This engine now has, we believe, a perfectly clean record before the trade, having never failed to give satisfaction, and never

selected as a specialty, viz., the building of high grade automatic engines of both the Corliss and single valve type, it having been deemed wise to discontinue the building of the ordinary slide valve or cheaper grades of engines, simply handling them for Eastern builders, and confining their attention and directing all their facilities to the production of a high class of goods, feeling that it was impossible to combine both the high grade and the cheaper grade of engines in the same works. It is the intention to make the boiler shop one of the largest and best equipped in the West, and to turn out work there from second to none in the country; at the same time declining to compete with the cheaper grades of Eastern work, which are offered at such extremely low prices as to make it impossible to furnish first-class goods. They are now erecting in their machine shop a large over-head traveling crane of about three tons' capacity, which will furnish the best of facilities for handling heavy work in and out of the larger machine tools; it also covers the erecting floors to facilitate the putting up and taking down of engines; also for loading the engines complete for shipment.

In addition to the manufacture of high grade engines, they are now handling a full line of engines built by the Erie Engine Works, Cleveland & Hardwick, proprietors, whose goods have the very best of reputation throughout the country. They are also general Western agents for the Miller Duplex Steam Pumps, especially adapted to boiler feeding; also Western agents for the Shipman Oil

bly by the heavy decline in corn, and large advance in wheat. Oats have slightly declined, in sympathy with corn, but the other small grains have advanced.

The average reduction in value of corn exceeds 20 per cent.—from 44.4 cents per bushel in 1887, to 34.3 cents—a difference not greater than the disparity in the size of the two crops. The reduction in the seven corn surplus states is proportionately larger—from an approximate average of 39c. last year to 28c. These averages are: Ohio, 35c.; Indiana, 31c.; Illinois, 29c.; Iowa, 24c.; Missouri, 32c.; Kansas, 26c.; Nebraska, 22c. The range in the Eastern states is from 65c. to 75c.; in New York, 57c.; Pennsylvania, 51c.; and in the South from 41c. in Texas to 64c. in South Carolina.

The advance in wheat from 68c. last year to 92c. is due less to reduction in home product than to foreign deficiency. The averages of prominent wheat growing states, as compared with those of last December, are advanced as follows: Ohio, 75c. to 97c.; Michigan, 74c. to 98c.; Indiana, 72c. to 94c.; Illinois, 70c. to 93c.; Minnesota, 59c. to 90c.; Iowa, 61c. to 85c.; Missouri, 62c. to 88c.; Kansas, 61c. to 88c.; Nebraska, 53c. to 83c.; Dakota, 52c. to 91c.

The average price of oats is reduced from 30 cents last year to 28c. Barley has advanced from 52 to 59 cents; rye, from 52 to 59 cents; buckwheat, from 56 to 63 cents.

The decline in potatoes—from 68 to 40 cents—marks the lowest average recently recorded, while the highest was 90.9 cents in 1881, when the product was only 100,000,000 bushels.

THE MORGAN OAT CLIPPER AND POLISHER.

The call for devices for cleaning and clipping oats has been so continuous that the well-known firm of Charles Kaestner & Co. of this city have been induced to build a machine expressly for this purpose. Their regular wheat machine was, we are informed, the first one used for clipping oats, and was therefore the pioneer machine in this particular field.

Machines for cleaning and clipping oats should have very large capacity, and this is one of the purposes aimed at by the manufacturers in the machine under consideration. This machine has a capacity of over 400 bushels per hour, and, with the oats in first-class condition, has handled 500 bushels per hour. It is very substantially built, strong and durable, and can be adjusted to scour severely or lightly by adjusting the beaters. When once adjusted, the machine can be run by any one, as it requires no attention. It does not break the oats, or make any waste, except the dirt and beards. The speed of the machine is moderate, and therefore does not require very much power. It does not take more than 8 to 10-horse power to run the machine to its fullest capacity. The scourer will pay for itself in a very short time. It scours and clips the oats, increasing the market value considerably in excess of what the offal amounts to; hence the gain.

All parts of the machine that the grain comes in contact with are made of iron, so that the wear on them is brought to a minimum. The scouring case is made of cast iron, having oblong depressions on the inside, with chilled slots running around the case, making an uneven scouring case, which is free from any sharp edges. At the bottom of these depressions are openings cored in the casting, which will permit free ventilation. The case is constructed in sections, called staves, which can be readily removed without taking the machine apart. Most machines that are made for polishing grain are made with smooth jackets with punched slots. The objection urged against these slots is that they form very sharp shearing edges, it is claimed, and also that jackets made in this way will cut or chop the bran of the berry, while the smooth case will allow the grain to pass through so rapidly that it is not subjected to sufficient scouring. The manufacturers call particular attention to the construction of their machine which obviates this difficulty.

The oats first drop onto a sieve, where all sticks and straws, stones, or other foreign substances which are detrimental to the sale of the oats, or that may injure the machine, are taken out. The sieve is very wide, so as to allow the oats to spread out in a thin sheet, and to give it an opportunity to pass through the perforations of the sieve, and allow no oats to tail over. After passing through the sieve the oats fall on a cant board which conducts them to the inlet of the case. The grain then falls onto a rapidly revolving plate, from which it is distributed evenly around in the space between the beaters and the case. The beaters throw the oats into the oblong depressions of the case, whence they rebound to the beaters, and, being thrown back and forth between the beaters and the case, the oats are thoroughly scoured. All the impurities that are loosened are immediately drawn through the slotted openings and carried to the fan, thus not allowing any of the dirt to be rubbed into the crease of the kernel, from which it could not be removed. After the grain leaves the case, it falls into a suction spout and meets a strong current of air, which divests it of any remaining impurities before it leaves the machine.

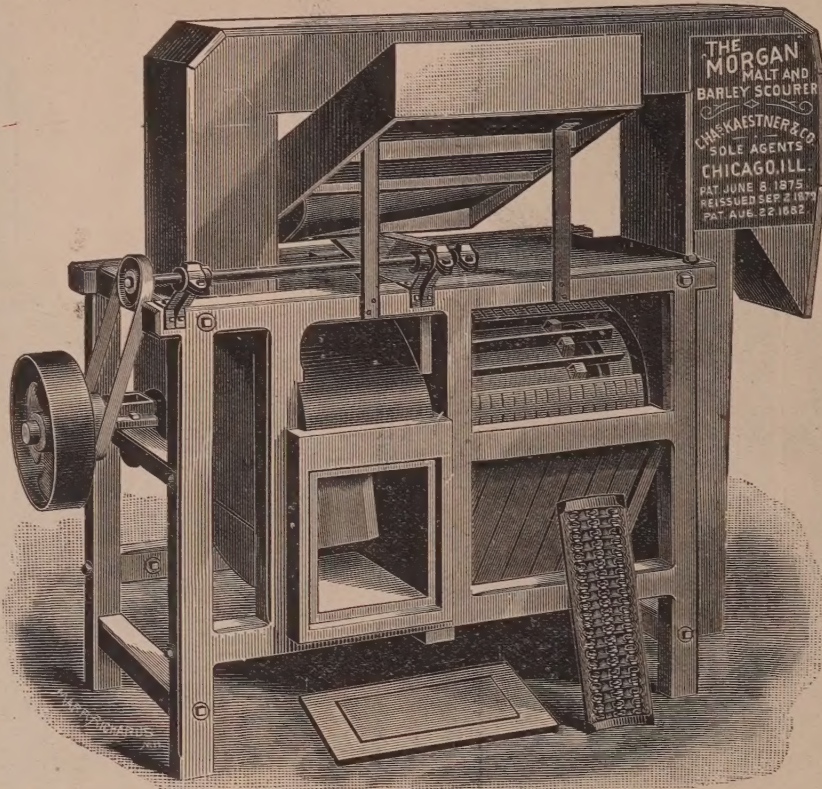
The manufacturers say: "We do not claim that we have the only machine that will clip and polish oats, but what we do claim, and are prepared to prove, is that our Extra No. 5 will handle more oats per hour, with less power and attention, than can be handled by any machine in the market. During the past season we have put in 'The Morgan' for the following parties, to whom we refer all who contemplate the purchase of oat clippers or polishers: E. A. Delano, Hinckley, Ill.; George H. Sidwell & Co.,

Chicago; Holmes & Thayer, Manhattan, Ill.; Fiske, Thomas & Co., Chicago; R. P. Fish, Bath Mills, Mich.; Winona Elevator Co., Winona, Minn.; R. Putnam, Flint, Mich.; Druly Bros., Joliet, Ill.; W. M. Druly, Chicago; J. S. Holmes, Spencer, Ill.; J. S. Stevens, Grand Crossing, Ill.; Farmer, Harris & Co., Hayford, Ill.; R. G. Stevens, Chicago; G. Morgan & Sons, Chicago, two machines; G. W. Wiley, Chicago, two machines; Streeter & Co., Chicago, two machines; J. E. Bush, Joliet, Ill.; Middle Division Elevator Co., Matteson, Ill.; G. J. Relseck, agent, Pittsburgh, Pa., four machines; Atlantic Elevator Co., Chicago; J. S. Smith, Chicago; W. H. Rogers & Co., Chicago; H. C. Teed & Co., Chicago and Joliet, Ill."

The sole manufacturers of this machine are MESSRS. CHARLES KAESTNER & CO., founders and mill furnishers at 303-311 South Canal street, Chicago, and they will take pleasure in giving readers any further particulars respecting it that may be desired.

INSPECTION IN MINNESOTA.

The third annual report of the Chief Grain Inspector



THE MORGAN OAT CLIPPER AND POLISHER.

has been submitted to the Minnesota State Board of Railroad and Warehouse Commissioners. The report covers the work done at St. Paul, Minneapolis and Duluth, with exhibits giving a full outline of financial transactions. Below are the salient points in the report of the Chief Grain Inspector, J. A. James:

At Minneapolis the receipts were 76,612 cars of wheat, as against 71,082 cars for 1887; at Duluth, 30,712 cars, as against 35,023 cars in 1887, and at St. Paul 7,891 cars, as against 7,818 cars in 1887, making the total receipts in cars 115,215, as against 113,923 cars for 1887, a gain of 1,292 cars. The falling off in receipts at Duluth and the gain at Minneapolis were unquestionably caused by the demand for wheat for home consumption by the millers, as the margin upon flour was an inducement for them to do as much business as possible. While the total number of cars received the present year exceeds that of last year, the net bushels of grain after cleaning would be smaller, as most of the grain was quite dirty and the dockage for dirt, therefore, necessarily greater. The question of dockage is the most difficult an inspector has to deal with, the following being given as showing the necessity of having inspectors who are experts:

The entire crop received was over 67,000,000 bushels; a mistake of one ounce to the bushel would make a difference of 69,792 bushels, and if the dockage was out of the way a quarter of a pound the difference would be 279,166 bushels. With foul matter in wheat ranging from one-half a pound to ten pounds this is not an easy matter to handle.

There is no other market where wheat is given it

proper grade, if clean. When in the dirt it is graded or the grade is fixed at the time without reference to the grade if properly cleaned. It is easier for the farmer to have wheat cleaned at the elevator than at home, and the only thing to do is to get the best inspectors possible and grade the grain according to its merits, being very particular about fixing the dockage. I am of the opinion that the dockage has been about right. When grain is shipped out of a public elevator the inspector has also to be very careful to see that nothing but clean wheat of the proper grade is loaded that will compare favorably with the samples of wheat sent out as "Minnesota grades," which are now at a premium in foreign and the principal Eastern markets.

There has been less complaint and less friction between the different interests in the three cities the past year than ever before. Such complaints, however, have been made, and will be in the future, as the markets are sure not always to be the same. Each city is in charge of a chief deputy inspector, who has a corps of assistants, all under a chief inspector, who keeps the grades as nearly uniform as possible, thus using every precaution to make the system an even one. The forces are now full of good men, and a large part of the credit for Minnesota high standard is due to the untiring efforts of Chief Deputies A. C. Clausen and John Shely.

The receipts of the present year were \$90,731.96, as compared with \$84,373.51 last year. The expenses were \$81,496.96, as compared with \$64,731.30 last year. Net earnings, \$9,235. There are two reasons for the increased expenses. First, it was necessary to pay old and experienced men larger salaries. Second, the crop was very difficult to handle. The department has a surplus of \$28,877.21. This insures the proper handling of a small crop, and does not compel the crippling of the force. I do not believe it advisable, at least before another crop begins to move, to reduce the inspection fees of 25 cents per car. I do not know of another state that can make as good showing in the handling of her grain for the past three years as Minnesota. This is due to the support received from the commission.

George W. Marchant, state weighmaster, makes a report largely on the methods of weighing grain. He makes some recommendations of importance. They are:

"My judgment is that if the weighing department were changed so as to have a chief state weighmaster in charge

of the entire weighing systems of the state (with the same powers as the chief grain inspector has of inspection), with a chief deputy at the other points, it would benefit the service much, especially in the matter of help. I would also recommend that at all elevators there be a man stationed below, whose duties, among other things, shall be to inspect all cars received and note their condition, whether in good or bad order; see all cars to be loaded out, both before and after loading; look after the unloading and loading of all cars and see that it is properly done, reporting everything regarding all cars handled.

"The magnitude of the wheat business of this city (Minneapolis) or rather the amount of business of this department is not shown by the wheat receipts alone, as wheat is constantly changing hands and being moved. The past year this department has handled 111,159 cars in all—equal to a train 842 miles long."

Up to Dec. 7 forty-five steamships had been chartered to carry grain from Baltimore to Cork during December, January and February. These vessels will transport about 3,600,000 bushels of grain, most of which will be corn.

The San Francisco Produce Exchange has issued an account of stock showing the amount of grain in California on Dec. 1. There was 10,820,000 centals of wheat, 4,087,000 centals of barley, and 267,000 centals of corn, against 9,730,000 centals of wheat, 4,523,000 centals of barley and 121,000 centals of corn in the state Jan. 1, 1888.



The Richmond City Mill Works, Richmond, Ind., write us that business is much better than is usual at this time of the year.

The Union Iron Works, Decatur, Ill., have been having a most gratifying trade upon both their Western Mill Sheller and their Field Portable.

Thornburg & Glessner, 12 North Clinton street, Chicago, say trade has been on a steady increase, showing 26 per cent. in increase over 1887.

W. G. Avery of Cleveland, Ohio, patentee of the Avery Seamless Elevator Bucket, has just had a new patent granted him for an elevator bucket.

The "Excelsior" Oat Clippers, manufactured by the E. H. Pease Mfg. Co., Racine, Wis., are rapidly finding their way into New England and the Middle states.

The Foos Mfg. Co., Springfield, Ohio, manufacturers of the "Scientific" Mills, have been awarded the highest and only medal for the best grinding mill at the Centennial Exposition at Cincinnati, Ohio.

Messrs. Baumann & Lotz, Chicago, Ill., are preparing plans of a malting house for the Tankard Malting Co., Melbourne, Australia. It will have a capacity of 200 bushels, and, with elevator, will cost about \$150,000.

The Eureka Works at Silver Creek, N. Y., S. Howes, proprietor, have orders enough on hand to more than run through the current year. The annual shut-down for inventory will be mighty short, from present indications.

The Avery Elevator Bucket Company, Cleveland, O., have adopted a new corporate name, and will hereafter be known as the Avery Stamping Company. They expect to occupy their new works before the beginning of the year.

Cranson, Huntley & Co., Silver Creek, N. Y., write us that everything continues to boom with them, and their business is growing so rapidly that they have been forced to erect a new building to admit of their machine and blacksmith shops being enlarged. The addition will be 70x36 feet, and they expect to occupy it Jan. 1.

The New York Belting and Packing Co., one of the oldest and largest manufacturers of rubber belting, packing and hose, in the country, continually find an increasing business, and have recently opened a branch house at 17 and 19 Main street, San Francisco, Cal., which will be under the control of Messrs. Arnett & Rivers.

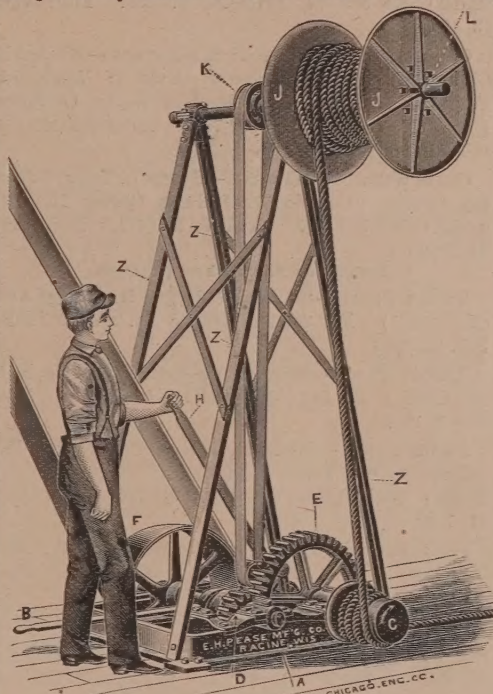
The business of the Sioux City Foundry and Machine Works is rapidly improving and the prospects for the winter's trade are very flattering. Among the recent sales which they have made we note two of their 75 horse power Corliss Engines sold for the Pioneer-Press Building at St. Paul, Minn.; also two 75-horse power Corliss Engines sold for electric lighting purposes, one of which goes to James Bell, David City, Neb., and the other to the Storm Lake Electric Lighting Company, Storm Lake, Iowa. These consisted of complete steam plants. The first of the new line of sizes, a 10x16 of Giddings' Single-Valve Automatic Engines, was sold some time since together with a boiler to go to the Chillicothe Water, Gas and Electric Light Company, Chillicothe, Mo. This will be tested at the works this week and forwarded to its destination at once. They have also a large force of pattern makers at work bringing out a full line of sizes of this justly popular engine, which is known at the East as the "Russell Automatic," and which is enjoying such a trade that it is difficult for the original builders to keep up with their orders. In addition to this the Sioux City Engine Works have recently sold several large boiler plants, together with a number of combined outfits of the Erie Engine Works, manufactured by Cleveland & Hardwick of Erie, Pa., for which they are Western agents. They are still very busy improving their works, and are putting in at present a 90-inch fly wheel lathe, also an overhead traveling crane, 30-foot span and seven ton's capacity. Their foundry department is driven to its utmost capacity, being obliged to work evenings in order to get out the engine work in addition to the large amount of architectural iron work, which is required by the rapidly growing country surrounding them. They also report several sales of the Miller Duplex Steam Pumps for boiler feed-

ing. This pump is rapidly growing in favor in their section of the country. During the past two weeks they received quite a number of inquiries from parties asking bids on both the Corliss and High Speed type of engines and they have every reason to believe that they will enjoy a large winter's trade.

The Prinz & Rau Mfg. Co., Milwaukee, Wis., recently issued a circular stating that they have purchased the plant of C. S. Birge, successor to Birge & Smith, millwrights and machinists, and will continue the business, endeavoring to merit all former patronage by first-class work, promptness in the execution of orders, and reasonable charges. Also that the Prinz & Rau Mfg. Co. are successors to Faustin Prinz & Co., the exclusive manufacturers of the following special machinery: The Prinz Patent Improved Smutter, Prinz Patent Improved Cockle Machine, Prinz Patent Combined Cockle, Oats and Screenings Separator, Prinz Patent Improved Barley Grader and Cockle Separator.

THE "HERCULES" POWER CAR PULLER.

We always take pleasure in bringing to the notice of the public any machine or device which we believe to be



THE "HERCULES" POWER CAR PULLER.

of value, either as an entire invention, or as making improvements upon old methods. In a recent issue we promised to give an illustration of the "Hercules" Power Car Puller, and we now redeem the promise.

This car puller supplies one of the necessities heretofore unprovided for, except to a very limited extent. Where large numbers of cars are required to be moved, singly or by the dozen at a time, it is a very expensive, and an almost endless job, to be obliged to depend upon pinch bars and other contrivances. The "Hercules" puller is self contained, being a machine complete in itself, requiring no mechanics to build any part, but with the exception of bolting the upright spool frame to the bed, the machine is all ready for work as soon as bolted to the floor. The capacity of this machine is said to be limited only by the strength of the rope, and certainly no more could be asked.

The machine is under the perfect control of one man, who starts or stops the cars instantly, at will. One of the principal features of the "Hercules" is its safety, avoidance of accidents, the gears running open, or from each other on top. It is not our province to give a full description of this car puller, but only to call attention to a really valuable machine, as those interested can obtain full information from the manufacturers, the E. H. PEASE MFG. CO., Racine, Wis.

A farmer in Monterey county, Cal., will sow 16,000 acres with grain this winter.

Eight boys at Dubuque, Iowa, formed a pop corn trust. They popped the corn by means of a gasoline burner, which exploded and destroyed the stand and knocked the trust sky high.

A PORTABLE ELEVATOR.

BY R. JAMES ABERNATHEY.

The minor member of a leading Western grain firm once suggested the probability of having an elevator on wheels, and requested the writer to formulate a plan for such an undertaking. It was not the design to have a store house; simply a traveling corn shelling institution of large capacity for shelling from cribs and loading into cars at the same time. The idea was a novel one, which interested me a good deal, as much on account of its novelty as anything else, and I proceeded to carefully draw up a plan; but the grain man never made up his mind to carry out the idea, thinking, doubtless, that it could not be made to pay along the lines of road on which he operated, there being already a goodly supply of elevators at different points, and new ones being added every year.

Notwithstanding that, I thought then, and think yet, a traveling institution of that kind would be valuable in new sections of corn growing country that are being opened up by new lines of railroad. It usually requires a number of years in a new territory for any one point to assume importance enough to go to the expense of building an elevator, and still longer before every point can afford an elevator. The common practice, in all such cases, is for a buyer to build a crib, or several of them if required, fill them up with corn, and then sometime during the winter or spring hire a slow and wasteful old portable shelling apparatus, a couple of teams or more, as the case may be, a half dozen or so of men, and proceed to empty the cribs; a part of it is loaded into cars, and the balance wasted. At best it is a tedious and annoying process; whereas if there was a rig fitted up on a car that could be transported from station to station, the work could be done much better, quicker, with less help, and more satisfaction in every way. The manner of fitting up is very simple. A flat car would have to be made for the purpose, not less than 34 feet long, longer would be better, and as wide as regulations will permit. It should also be as low as practicable. At one end of the car must be fixed a steam plant, boiler and engine attached, of sufficient power to do the work required.

For cleaning the corn a first-class rolling screen corn cleaner should be procured, which must be set with the tall toward the engine, and at least 2 feet above the floor, and about midway the car crossways. Then a sheller of the Western type should be set immediately above the corn cleaner, so as to discharge into the cleaner. For driving these two machines a right angle main shaft must run along the floor of the car, high enough from it to clear all wheels and pulleys. Either timbers or iron stands can be used for supporting the shaft. A short shaft running crossways the car is driven by belt direct from the engine shaft; that, in turn, drives a longer shaft which runs lengthways the car, by the use of a pair of bevel core wheels, that is one, the pinion having iron teeth and the wheel wooden cogs. The wheels should be about two to one in size, so as to give a rapid speed to the long shaft which drives the sheller and cleaner. The driving pulleys then will not have to be so large. The sheller and cleaner will each be driven separately. I do not advise the use of a combined sheller and cleaner, because it is impractical to make them of large capacity that will clean the corn so that it will grade.

Two hopper scales of, say 100 bushels each, they may be larger if there should be room enough, should be fitted up side by side crossways the car, and as close to the sheller and cleaner as they can be set. A stand of elevators must then be put up so as to receive the cleaned corn from the cleaner and discharge into either one of the hopper scales by using a swinging spout. At the opposite side of the scales must be another stand of elevators that will receive the corn from either of the scales and discharge it into a car standing on an adjoining side track. By that means all of the corn can be carefully weighed as fast as loaded. Whenever one of the hoppers is full the elevator can be switched into the other. The first one can then be weighed and turned into the loading elevator, which should be of large capacity so as to empty the hopper quickly. It ought also to be high enough to fill the car without much extra shoveling.

For loading the cars a detachable flexible spout can be used, the same as is found in many of the larger elevators, for that purpose. The ear corn must be fed to the sheller with an inclined drag belt, similar to those used for the same purpose in regular portable shellers. The head shaft, which will be above the mouth of the sheller, must be so arranged as to reverse its motion at will, because the probability would be that the shelling or receiving

side of the car would be changed as often as the apparatus was moved from one station to another, and possibly at the same station, where there are two or more buyers that want to have corn shelled. The feeding drag must therefore be arranged so as to feed from either side of the car when it becomes necessary to change. As all will understand, it would have to be made detachable any way, so as to be detached and loaded on the car when moving. It then becomes just as easy to arrange it to work from each side of the car by having the motion of the head shaft, which drives it, reversible. It should be long enough to have a moderate incline only when in position.

There must also be a cob carrier at the tail of the cleaner, as it would be found impossible to burn the cobs as fast as they run out. The engineer should have what was required for steam making purposes run out on to the floor of the car, and when he has a stock accumulated have it so he can switch them on to the carrier and take them out of the way. The carrier need not be more than 20 feet long, with the outer end pretty well elevated, so as to give room for stacking up the cobs. The cob carrier will also have to be arranged to drive from both sides. That can be easily done, as it should be driven from the outer end by a light belt, which can be open when driving from one side and crossed when driving from the other. High flanged pulleys should be used for the purpose, so that slight irregularities would not throw the belt.

The loading elevator should be stood midway the car crossways, and made to discharge directly outward in the lengthways direction of the car. It will then have an equal chance in filling a car from either side. For that matter, both stands of elevators should be made to discharge in the same direction, and a shaft running at right angles with the main shaft put in for driving them. The elevators will have to be arranged so that they can be taken down and loaded on the car when moving. It would not be necessary to take them apart, as neither of them need be over 16 feet in height, and could therefore be handled whole very easily. The pulleys should be small and run as rapidly as they can be made to, and discharge right. The loading elevators have a lifting capacity of twice or nearly twice the capacity of the sheller, so as to get everything out of the way in season and allow for switching the scale elevator as soon as one of the hoppers is full.

Now this whole scheme is original and novel, but it is very practical, and I have always considered it a great improvement over the common method of shelling and loading corn at points where there are no elevators. Every person can see how much better it could be done in the way proposed, and how much faster also.

A canvas covering should be provided to cover the whole car in time of stormy weather, when no work could be done.

The regular cribbing corn buyers to be found at nearly every corn buying station, and who never expect to build an elevator, can greatly improve their condition during the corn shelling and shipping period if they would provide their cribs with a drag belt. The way to do it is to put up two long cribs, side by side, with a space of about two feet between them. In that space a drag belt box should be fitted, and the bottoms of the cribs should be slightly pitched in the direction of the drag box. Pulleys for carrying the belt should be fitted in each end of the box, the forward one being so arranged that the power can be attached for driving it. The rear one should have take-up boxes in the ordinary way, to take up the slack when the belt is at work. When all is ready a belt should be fitted in, but not to remain there. It must be taken out and preserved until shelling season arrives; and when the shelling is done it should be taken out again. Arranged in that way, one man could feed the sheller as long as there was any corn in the cribs, and that, too, without the use of teams, or any other aid except the drag belt, which the corn sheller owner must drive. If the buyer moves to another locality, he can take his drag rigging with him.

A German expert reckons that if a single grain of wheat produces fifty grains, and each one of these grains produces fifty more, and so on, there will be 125,000 grains from the one grain the third year, which would be enough to give 300 men one meal, and bran enough to feed eight pigs one day. The twelfth year there would be 244,140, 625,000,000 grains produced from the single grain, or enough to feed all the inhabitants of the world during their lifetime.



Issued on November 13, 1888.

BAG FASTENER.—George Leder, Demopolis, Ala., assignor of one-half to Walter T. Forbes, Atlanta, Ga. (No model.) No. 392,958. Serial No. 275,249. Filed May 26, 1888.

BALING PRESS.—Chester L. Ames and James P. Ames, Cabery, Ill. (No model.) No. 392,657. Serial No. 268,082. Filed March 22, 1888.

BALING PRESS.—Potivent I. Crews, Meridian, Miss. (No model.) No. 392,785. Serial No. 269,562. Filed April 4, 1888.

BELT FASTENING.—Alexander Leforestier, Philadelphia, Pa., assignor of one-half to B. F. Banes, same place. (No model.) No. 392,873. Serial No. 282,685. Filed Aug. 13, 1888.

FANNING MILL.—Hans G. Blom, Watson, Minn. (No model.) No. 392,713. Serial No. 270,583. Filed April 13, 1888.

OAT EXTRACTOR FOR GRAIN SEPARATORS.—William P. Clifford, Ottumwa, assignor to David W. Templeton, Fairfield, and the Western Machine Works, Ottumwa, Iowa. (No model.) No. 392,783. Serial No. 195,874. Filed March 19, 1886.

GRAIN WEIGHING MACHINE.—George C. Flagg, Columbus, assignor of one-half to J. Rump, Quincy, Ill. (No model.) No. 392,670. Serial No. 280,474. Filed July 20, 1888.

Issued on November 20, 1888.

BALING PRESS.—William P. Martyn, Harrisburg, Ore. (No model.) No. 393,116. Serial No. 264,849. Filed Feb. 21, 1888.

BALING PRESS.—Otis J. Truesdell, Farlington, Kan. (No model.) No. 393,086. Serial No. 272,929. Filed May 5, 1888.

DRIVE CHAIN.—James M. Dodge, Philadelphia, Pa., assignor to the Ewart Mfg. Co., Chicago, Ill. (No model.) No. 393,220. Serial No. 282,707. Filed Aug. 14, 1888.

FEED MILL.—Gullford D. Rowell, Appleton, Wis. (No model.) No. 393,032. Serial No. 249,210. Filed Sept. 9, 1887.

GRAIN MEASURER AND TALLY.—William C. Watkins, Fairfield, Ill. (No model.) No. 393,046. Serial No. 278,338. Filed June 27, 1888.

Issued on November 27, 1888.

BAG HOLDER.—Albert D. Wallace, Wilmet, assignor to Joseph A. Putt, Marlborough, Ohio. (No model.) No. 393,407. Serial No. 272,202. Filed April 28, 1888.

BALING PRESS.—John H. Gardner, Adairsville, Ga., assignor to J. E. Sanders and Seid Waddel, Union City, Tenn. (No model.) No. 393,697. Serial No. 277,498. Filed June 18, 1888.

DRIVE CHAIN.—John A. Stone, Chicago, Ill., assignor to William Deering & Company, same place. (No model.) No. 393,490. Serial No. 292,616. Filed Aug. 13, 1888.

DRIVE CHAIN.—John A. Stone, Chicago, Ill. (No model.) No. 393,491. Serial No. 286,338. Filed Sept. 25, 1888.

GRAIN CLEANER.—Joab C. Fisher, Beloit, Kan. (No model.) No. 393,635. Serial No. 267,996. Filed March 21, 1888.

GRAIN SEPARATOR.—Philip D. Willis, Toledo, Ohio. (No model.) No. 393,411. Serial No. 265,066. Filed Feb. 23, 1888.

Issued on December 4, 1888.

DRIVING BELT.—George W. Heffner, Dayton, Ohio, assignor of one-half to Charles Whealan, same place. (No model.) No. 393,902. Serial No. 277,972. Filed June 23, 1888.

BELT FASTENER.—Thomas Lynett, Cleveland, Ohio. (No model.) No. 394,076. Serial No. 254,421. Filed Nov. 5, 1887.

DRIVE CHAIN.—Sylvanus D. Locke, Hoosick Falls, N. Y. Original application filed Feb. 20, 1888. Serial No. 264,666. Divided, and this application filed March 24, 1888. (Model.) No. 393,992. Serial No. 268,400.

COCKLE SEPARATOR.—Frederick W. Howell, Buffalo, N. Y., assignor to M. T. Howell, same place. (No model.) No. 393,829. Serial No. 244,064. Filed July 12, 1887.

REVERSIBLE DRIVING GEAR FOR CONVEYORS.—George L. Jarrett and Joseph P. Bower, Des Moines, Iowa. (No model.) No. 393,762. Serial No. 270,676. Filed April 14, 1888.

MACHINE FOR SCOURING GRAIN.—Conrad C. Schill, East New York, N. Y. (No model.) No. 394,019. Serial No. 262,601. Filed Feb. 1, 1888.

GRAIN SEPARATOR.—George W. Morris, Brantford, Ont., Canada, assignor to Alfred Watts, same place. (No model.) No. 394,001. Serial No. 239,979. Filed June 1, 1887.

HORSE POWER.—Charles E. Sutton, Richmond, Ohio. (No model.) No. 393,794. Serial No. 279,425. Filed July 9, 1888.

GRAIN WEIGHING SCALE.—Henry Cutler, North Wilbraham, Mass., assignor to Henry Willis Cutler, same place. (No model.) No. 393,888. Serial No. 271,595. Filed April 23, 1888.

GRAIN TALLY.—Branson McDonald, Macksville, W. Va. (No model.) No. 393,777. Serial No. 279,702. Filed July 12, 1888.

Issued on December 11, 1888.

BALING PRESS.—Anton Freytag, Flatonia, Tex. (No model.) No. 394,261. Serial No. 278,808. Filed July 2, 1888.

BELT FASTENER.—James Snow, Cleveland, Ohio, assignor to William H. H. Peck and Sarah E. Snow, both of same place. (No model.) No. 394,412. Serial No. 271,399. Filed April 21, 1888.

BELTING.—George F. Page, Concord, N. H. (No model.) No. 394,503. Serial No. 255,176. Filed Nov. 14, 1887.

APPARATUS FOR HEATING GRAIN.—Robert C. Hawley and George E. Hawley, South Bend, Ind. (Model.) No. 394,267. Serial No. 267,410. Filed March 16, 1888.

GRINDING MILL.—George A. Young, Brooklyn, N. Y. (No model.) No. 394,238. Serial No. 184,507. Filed Dec. 2, 1885.

AUTOMATIC GRAIN WEIGHER AND REGISTER.—John K. Bender and Joseph H. Bingman, Highland, Kan. (No model.) No. 394,440. Serial No. 278,390. Filed June 28, 1888.

SMUT IN CORN.

For years past the writer has been making experiments in regard to the smut of corn; its nature, habits of growth, and the consequent ability of farmers to eradicate it from their fields. The results of this study have been given from time to time in these columns. The main points which have been determined are that this parasite enters the plant at the roots and from the soil; that it is much encouraged from the continuous growth of corn upon the same land; that the refuse smutty stalks should be carefully gathered and burned to destroy the spores and prevent the stocking of the soil with them; that if permitted to go into manure the parasite is thus sown upon the land where it is likely to remain until a new crop is planted; that if the smutty fodder or corn is fed the spores will pass through the animal unharmed and go into the manure, and that these spores are not likely to spread from one field to another through the circulating air. These points being determined, it is no more than a matter of common sense and ordinary judgment to eradicate this parasite and put an end to it by the combined and contemporaneous efforts of farmers.

The vegetable pathologist of the Agricultural Department in his report for the year 1887 gives a prominent place to the subject of corn smut (*Ustilago zeæ mayis*) and describes its history, character, and manner of growth, from which the most effective measures for its destruction may be deduced. It was first specially described and named 180 years ago. At first it was not recognized as a plant, but later was properly designated by Linnaeus and Jussieu, the leading botanists of their day. Before 1805 it was thought to be a variety of the wheat smut, but in this year it was distinctly classified as the smut of maize by de Candolle. In 1822 it was first noticed in America, and that was described as occurring only in the ear, being then supposed to be different from the European species. In 1848 it was shown to be the same plant as the European smut, but little was known of its manner of growth and reproduction until ten years later, when

Kuhn described the results of his investigations and the manner in which the parasite made its entrance into the plant, as well as its history while in a dormant condition and waiting for an opportunity of occupying a corn plant.

Every farmer knows what corn smut is and how it bursts from all parts of the plant, the stem, the leaves, the ear, and the tassel. The spores are the brownish dust which forms masses upon various parts of the plant, and which are the matured form of the fleshy excrescences that are first seen upon the plant. In this respect the parasite bears some resemblance to an ordinary puff ball, at first a spongy, fleshy substance, changing in time to a mass of fine dust or powder. In the corn smut this mass is oily and adherent. The spores fall upon the ground where they remain until a corn plant appears when they become attached to the stem, and, germinating, send threadlike branches into the pores of the plant, where these again branch, forming a complicated, tangled mass of the threadlike mycelium that in time causes the tissues of the plant to swell and form a prominent bunch of tumors. These threads soon bear the spores at their ends, the spores increasing from the outside inward until the swelling is a mass of blackish-brown powder of a slimy consistency. The spores are rounded bodies so small that 25,000 of them placed in line will measure an inch, and 625,000,000 of them occupy a surface one inch square, an ordinary smut ball upon a corn plant will thus be made up of countless millions, and sufficient in number to spread over many acres of ground and still the spores so near together that a corn plant could scarcely escape them. The ease with which a parasite spreads through a corn field is therefore explained as the difficulty of preventing its attack once the soil is stocked with the spores.

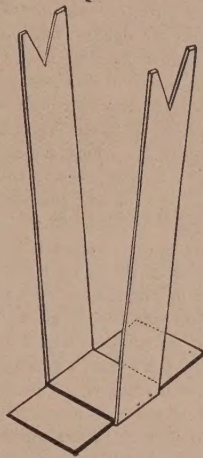
It is believed that the parasite attacks the corn plant at the first joint above the root. This is the opinion of the observer Kuhn, who has studied corn smut carefully and perseveringly for many years. Our own observations, however, lead to the belief that the mycelium proceeding from a germinating spore enters the roots, for we have found the balls of immature smut upon the plant at the roots and upon the aerial or brace roots. This, however, is immaterial. It is quite within possibility, no doubt, that in a dry time the spores may be raised by the wind, and floating in the air, lodged upon any part of the plant, and germinating there, find easy entrance through the stomata or air tubes which exist in the leaves and stem as well. The spores seem to germinate equally well in dry or wet seasons, and some dry seasons have been marked by severe outbreaks of it.

The repetition of corn crops consecutively upon the same ground favors the increase of the parasite. In our own investigations this has been found to be the case so much so that the seventh successive crop of corn was almost completely destroyed by the smut, only a very few plants escaping. This fact, and another given by Mr. Scribner, the pathologist of the department, viz., that the parasite is able to enter only the young plants, may be turned to useful account in attempts to avoid its attacks.

Remedies are unavailing—prevention is the only cure for this disease of the corn plant. These are not given as fully as might be in the report referred to. The cutting out and burning of the diseased plants securing the destruction of the spores is a self-evident means of prevention, and this is recommended in the report. Other remedies which have been tried and found effective by the writer are to avoid planting corn after corn in all cases; pull up on sight when the corn is worked every young plant that is affected, and before the smut is mature and the seed spores are ripe; to select the seeds from healthy plants and to steep it in the same kind of solution that is used for preparing wheat for the same purpose, viz., four ounces of sulphate of copper in a gallon of water, and to use it in such a quantity that the liquid is wholly absorbed, which is a gallon for five bushels of corn. As a small quantity of seed is used, it is easy to prepare it so that the grains are made to absorb the quantity required, and if the seed is sown by machine it is dried for 24 hours after the treatment. We have used similar solutions made with common saltpetre at the rate of one pound to the gallon of water, and this has acted as a useful stimulant to the germination of the seed as well as a safeguard against the damage so often done by birds. The use of artificial fertilizers only for the corn crop is a means of safety from the parasites for the reason that the chemicals used are fatal to fungoid growths and manure is one of the most effective means of spreading and encouraging them.—*Henry Stewart in New York Times.*

BAG HOLDER.

The bottom is made of two-inch plank, one foot wide, eighteen to twenty inches in length. For the sides, pieces of oak or ash, three-fourths of an inch thick, six inches wide and forty-three inches long, are used. They should be firmly fastened to the bottom with three twenty-penny wire nails or long screws, so that they will spread about two feet at the top, which should be cut in the form of a letter V, as shown in the engraving. It is well to strength-



en the bottom by fastening a piece of inch board across between the uprights, which will also help to spread them apart properly.

To use the holder, turn over the top of sack, catch it on the top of upright farthest from you, then draw toward you until you can catch it on the other side. The sack will be firmly held without tearing, so that it may be conveniently filled.—*Exchange.*

AN ELEVATOR SCHEME AT BUFFALO.

Says the Buffalo Courier: "A resolution which was introduced in the Common Council, recently, brings to public knowledge a magnificent project that is on foot for the improvement of the grain storage and elevating facilities at this port. It contemplates the erection of an enormous storage elevator on the property fronting on Water street and the Evans Ship Canal, this elevator to be connected with the Bennett Elevator by means of conveyors crossing Water street at a height of 50 feet or more above the level of the street. The proposed new elevator is expected to have a capacity of 1,500,000 bushels; the Bennett Elevator is now being enlarged to a capacity of 800,000 bushels, with a second movable leg, which will double the rate at which the cargoes of vessels can be transferred to it; the two elevators joined as proposed across the narrow street which separates them will be practically one in their capacity for business, and will add immensely to the efficiency of arrangements at Buffalo for the handling of grain.

The enterprise originated more especially in the demand of the wheat shippers of Duluth and Minneapolis for increased storage room at Buffalo. It is becoming every year more evident that this is the proper storage point for the vast wheat crops of the new Northwest; and there is no more limit to the demand that will be made on Buffalo for such storage than there is a limit to the productiveness of the Northwestern wheat fields. The projected elevator improvement furnishes what is demanded at a location which makes it most desirable. The largest vessels that have been or that may be built on the lakes can find ample draught of water and ample space for turning at the point where the Blackwell Canal and Buffalo River come together, within a stone's throw of the harbor entrance. There, too, the water and the railroads are brought into the most convenient connection. Not only the New York Central and the Delaware, Lackawanna & Western roads, but also the West Shore and the several Canadian railroads can be brought into communication with the combined elevators."

Governor Larrabee and Secretary Shaffer of the Agricultural Society have been comparing estimates of the value of Iowa's crop for the present year. They estimate the value of all crops at \$240,000,000, and the value of the corn crop at \$75,000,000, which is figured on the basis of 300,000,000 bushels at 25 cents a bushel.



THE KEYSTONE CORN SHELLER.

Editor American Elevator and Grain Trade:—Will some one give me the address of the manufacturers of the Keystone Corn Sheller?

Yours,
New Holland, Ill.

VAN R. ST. JOHN,

THEY LIKE IT.

Editor American Elevator and Grain Trade:—Please send us the AMERICAN ELEVATOR AND GRAIN TRADE until we tell you to stop it. We like to have it all the time, and failure to renew was only neglect on our part.

Yours,
Wilmington, Del.

TATNALL BROS.

VERY OLD ITEM OF NEWS.

Editor American Elevator and Grain Trade:—I notice in your November issue that you speak of the C. V. R. R. building an elevator at this place. I have charge of this elevator, and received the first load of grain in it Dec. 21, 1886. From this you will see that the news was quite a while in reaching you. I inclose you money order for the AMERICAN ELEVATOR AND GRAIN TRADE, commencing with your January number.

Respectfully yours,
Martinsburg, W. Va.

J. N. THATCHER.

[The item in question was clipped from one of the "boom" papers. We suppose it has been traveling from one paper to another for the past two years, and probably it won't see the end of its travels for a couple of years more. Martinsburg will appear to have a large array of elevators (on paper) to the reader of industrial literature.]

QUICK WORK IN LOADING VESSELS FROM ELEVATORS.

Editor American Elevator and Grain Trade:—In a recent article in your paper the claim was made that a vessel could be loaded with 40,000 bushels in four hours' time. We have loaded the Northern Light with 87,000 bushels at the rate of 1,000 bushels per minute. On August 11, 1888, we loaded vessels as follows, in ten hours' time:

Schooner . . . Middlesex . . . 42,000 bushels No. 1 Hard Wheat.
Schooner . . . Allegheny . . . 43,000 bushels No. 1 Hard Wheat.
Propeller . . . Simon Langell . . . 40,500 bushels No. 1 Hard Wheat.
Propeller . . . Chas. S. Parnell . . . 69,000 bushels No. 1 Hard Wheat.

Total . . . 194,500 bushels No. 1 Hard Wheat.

All the above were loaded and on their way to Buffalo within ten hours' time.

Our total shipments this season at this writing (Nov. 17) are 110 boatloads.

The two mammoth elevator belts illustrated in your advertising pages of the New York Belting and Packing Co., are used in our elevators and are employed as conveyor belts, carrying grain from No. 3 Warehouse to No. 1 Warehouse at the rate of 15,000 bushels per hour.

Respectfully,
West Superior, Wis.

GEO. D. MOULTON,

Supt. Duluth Elevator Co.

The Dakota crop report for Dec. 1 has been issued, and shows that there was an increased acreage of all grains over previous years. Farmers are confident that good prices will continue another season, and will increase the acreage of wheat. The yield of wheat for 1888 was 38,749,980 bushels, against 52,406,000 bushels last year; 21,087,378 bushels of corn, against 20,992,000 bushels last year; 250,000 bushels of rye, against 237,000 bushels for 1887; 34,217,817 bushels of oats, against 37,266,000 bushels last year, and the yield of barley for 1888 was 1,278,200 bushels. The average yield per acre of wheat for 1888 was 9.2 bushels; corn, 25.5 bushels; rye, 13.5; oats, 27.2; and barley, 20.3 bushels. The average price per bushel of wheat on Dec. 1 in the state was 93 cents, against 51¼ cents the same day last year; corn, 29 cents, against 34¼ cents Dec. 1, 1887; rye, 44 cents, against 38 cents the same day in 1887; oats, 25 cents per bushel, the same as on Dec. 1, 1887; barley, 41 cents, against 39 cents Dec. 1, 1887; and buckwheat, 37 cents per bushel, against 52 cents per bushel the same day last year. The number of acres sown to wheat in 1888 was 3,994,563; corn, 826,956; and oats, 1,258,008.

TRADE IN THE SOUTHWEST.

KANSAS CITY, Dec. 12.—When the railroad moguls at New York, a few days ago, started into the attempt to form a clearing house for all the railroads of the country the elevator men of this section at once came to the conclusion that there was a nigger in the wood pile. They had a presentment that the railroad magnates were not engineering the scheme for the direct benefit of their elevators, and at once they set themselves to work to see what there was in the scheme. It did not of course take them long to unravel the true inwardness of the whole thing. Before the scheme had fairly come to a head they knew, as well as though they had been told, that the idea was to whip the devil about the stump and evade the inter-state law with reference to rates, especially in the western sections of the state. Now in the matter of rates, the average Western elevator man is well informed. While he may not know all the minutiae that are necessary to put them into effect, he does know that when once established they work a hardship on him, when compared to those that are held to Eastern points.

A week after the subject had been sprung, if a vote had been taken among the leading grain men of the Southwest it is believed that 20 per cent. of them would have voted in favor of the same, and ten days after this 20 per cent. would have been reduced to 10.

Jay Gould has always worked against the Western grain men, so far as railroad rates are concerned. The commission merchants here have many times felt the injustice of this one-man power, and when the inter-state law went into effect they justly rejoiced that the means of discrimination had been taken away and that, no less, volens, the railroad magnate would have to place Western points on a par with Eastern. They believed that the system, with few minor exceptions, was as perfect as could be. After trying the same for over a year and a half they are convinced that there are some things which are not settled, by a good deal. It is a notorious fact, that rebates amounting to large sums are allowed the larger dealers right along. In interviewing the larger firms dealing in grain about this city, I found them, with very few exceptions, highly in favor of a clearing house of the class suggested. They knew full well that they would be able to work the railroads to much better advantage than they were able to do now. The smaller dealers also knew that if the clearing house was once started, their goose was certainly cooked. They had beforetimes had a hard time of it, but with the new rule they had reason to think that they would have to seek other fields for operation. It is therefore easy to understand that they were not in the least in favor of it. The larger dealers, on the other hand, were, as stated above, in favor of seeing the new order of things go into effect.

I have talked with several of the rather large shippers from interior Kansas points, and to a man they declare that the commission men at the central points have the inside track on them. They hold that they cannot ship into the city at the rates that are given the large local dealers, hence when their emissaries come into the country and offer them certain prices for their grain they are obliged to take it, for the reason that there is no rebate for the countrymen. Of course the city grain man's profit is exactly the difference between what the regular rate on the railroads is and the rebate allowed, which in many cases amounts to a neat sum.

These rebates are given, too, in a peculiar manner, and there is no chance for those who want to get a case against the roads of procuring evidence. Last week only there was a case of the kind observed. A commission man in the city wrote to the manager of a certain road passing through here, whose headquarters are at Chicago, stating that an agent had agreed to allow a certain rebate on a shipment of grain from Kansas City to Chicago, but that the same had not been allowed. The manager replied promptly that the commission man was certainly mistaken. That no such rate or rebate was allowed—that the railroads were restrained by the inter-state law from allowing such things; but he hoped the commission man would wait until the coming Saturday, when an agent of the road would call and see him and correct the mistake he was laboring under. In due time the agent came along. After his visit the commission man was all smiles, and it was evident that rebates had been fixed up to the satisfaction of all parties. The fact is, that in allowing rebates no entrance is made upon the companies' books in the way of rebates. A favored shipper may and does very often enter complaint of damage to goods in transit, and

this covers many times the proposed and promised rebate. O, no, the commission man who is behind the scenes never expects to get settlements for rebates by mail or telegraph; the transaction is always consummated by personal contact. If any of the hundred of small country shippers can concoct a scheme for causing this plan of operations to cease, he will certainly be a Moses among the grain men of the country. It is fair to say that hundreds have tried it and as often failed.

Last week a grain man who had just returned from the section of Kansas where the wheat crop had been most liberal, declared that the agents who had reported that there was a good deal of the crop of the year being held back, did not know what he was talking about. According to his statement, there is very little wheat in the state for home consumption, let alone enough to ship to other states. A good deal of the wheat which was planted the past fall was shipped in from other states, as the natural growth was not the best for seed purposes. Even the last report of the Secretary of Agriculture in Kansas is misleading. According to the statements made by him, there is a plentitude of wheat in many counties of the state. The above alluded to commission man said he would be glad to give the man who would show him any visible supply of wheat in the counties which were most favored with wheat crop the past year, a goodly sized check for the substantiation of the report. The fact is, that while the winter wheat that has been planted is said to look finely, there is next to none to form a nucleus for the visible supply the coming year. What wheat there is in the state next year at this time will have to be produced next spring and summer, and of the truth of this statement there can be no doubt. As to corn, the supply is not very evenly distributed, but there is much more of this in the state than of wheat. However, little will be sent here. The farmers are making arrangements for feeding it almost entirely to hogs and cattle. There have been more feeders bought on this market, to go into the state of Kansas, than ever before in the history of this market, and the bulk of these purchases are to be fed and fattened with corn to be brought back here during the early months of next year.

At present there is in store at this city but 294,540 bushels of wheat. This is a decided decrease from last month, and while the receipts have been rather liberal from Nebraska, Iowa and some portions of Kansas, it is prophesied that the offerings from outside points to this market the coming month will be less than last month by more than 50 per cent. The demand for the wheat held here comes mostly from Northern points, very little of it going South. The local millers do not take much of this native wheat. They prefer, for some reason, to go North and get their supplies, holding that better flour is the result. The supply of corn, which last month was not over 7,000 bushels, shows up at present to the amount of 47,684 bushels. When it is taken into consideration that the railroads day after day unload into this city over the above amount of corn, it will be easily seen that corn this year has no staying qualities. About all that comes here is used for the running wants of consumers, and the elevators manage to handle very little of it. The supply of oats amounts to 336,927 bushels. This visible supply will decrease very much the coming months, as the receipts are now getting to be away below the shipments. The demand for oats in the local market is larger than ever before, and the call for the same from Eastern points is on the increase. If this market were to govern prices of this cereal for the coming three months prices would jump up very high. It is thought, however, that there is a good deal of oats still in the hands of Kansas farmers, who are holding the same for higher prices. This will not come into the city until next February, at least so I am informed by those best posted on the future of this cereal.

On the Board of Trade, during the month, there has been very little activity. At times no sales have been made of wheat for three and four days. Very little speculation in local offerings has been engaged in; however, the houses which represent Chicago have kept up to the average amount of business for this season of the year, and the feeling is one of general hope in the near future. I hear that several new firms are looking about for a location here so that they may be on hand and fully equipped for the activity which it is thought will be general next year.

The elevators at Indianapolis on Dec. 8 contained 500,251 bushels of grain, against 443,750 bushels on the same day last year.

Points and Figures.

A crank in Washington the other day demanded the arrest of the Weather Bureau for dealing in futures.

It is said that visitors to the Sioux City Corn Palace looked upon the structure with a maize.—*Pittsburg Chronicle*.

During the week ending Nov. 30 there were 5,396 cars of grain received in this city, against 4,224 cars the preceding week.

The customs authorities of Kingston, Canada, announce that 3,610,621 bushels of grain were handled at that port during the season just closed.

One road entering Indianapolis had calls for over 800 cars, to be loaded with corn, at points along its line, Dec. 6, and could furnish only 128 cars.

An immense reservoir is in course of construction in Egypt for the purpose of storing water for irrigation when the annual overflow of the Nile falls.

If "Old Hutch," the wheat speculator, will kindly explode a dynamite bomb by striking it with a hammer, poor people will hear of something to their advantage.—*Norristown Herald*.

One day recently Peoria, Ill., received 51,600 bushels of corn, that amount being excelled by only two cities in the United States—Chicago and New York. Peoria is rapidly becoming one of the best grain markets in the West.

A company of citizens from Sioux City, Iowa, bearing corn stalks, will represent the Corn Palace City at the inauguration of President Harrison. Those who will carry corn juice on that occasion have not yet been organized into a company.

It is reported on 'Change that "Old Hutch" is about to wind up his speculations and retire from the arena altogether. He will stop speculating when he is numbered with the things that were, and it is not at all likely that he will do so before.

A Frenchman, who is agent for a paper factory, has erected a little storehouse entirely of paper in Atlanta, Ga. No bricks, wood, iron or stone were used in its construction, and it is said to be as proof against fire and water as a wooden house.

The "Soo" Railroad has secured a seaboard outlet, but with the proviso that rates shall be uniform with other roads from the West to the East. This road was projected for the purpose of tapping the grain-producing Northwest Territory, to the detriment of Chicago merchants.

According to the report of the Commissioner of Agriculture at Washington, D. C., the yield per acre of wheat is greater in Oregon than any other state, being 16.3 bushels per acre. The largest yield in any of the states or territories is credited to Washington Territory, which gave a yield of 18.5 bushels per acre.

The visible supply of grain on Saturday, Dec. 8, as compiled by the New York Produce Exchange, was as follows: Wheat, 36,569,781 bushels, showing an increase since last reports of 487,213 bushels; corn, 6,576,017 bushels—decrease 480,059; oats, 7,591,592 bushels—increase 34,576; rye, 1,639,638 bushels—decrease 11,598; barley, 2,237,905 bushels—decrease 91,998.

The managers of the lines in the Central Traffic Association held a meeting in this city Nov. 30, and agreed to advance the rates on grain to the old tariff. On Dec. 7 it was announced that on Dec. 17 the rate on grain from Chicago to the seaboard would be advanced 5 cents, making it 25 cents per 100 pounds. The rate from Minneapolis to New York via Chicago will be advanced to 37½ cents per 100 pounds, and 42½ cents to Boston and common points. The rates to the seaboard via the Soo line will also be advanced some, but that company will insist on a differential of 5 cents.

The stocks of grain in Chicago elevators Saturday evening, Dec. 8, were 4,548,713 bushels of wheat, 1,725,690 bushels of corn, 2,910,061 bushels of oats, 740,385 bushels of rye, and 114,338 bushels of barley. Total, 10,039,187 bushels of all kinds of grain, against 7,137,106 bushels a year ago. For the same date the secretary of the Chicago Board of Trade states the visible supply of grain in the United States and Canada as 36,570,015 bushels of wheat, 6,576,344 bushels of corn, 7,591,566 bushels of oats, 1,640,055 bushels of rye, and 2,385,306 bushels of barley. These figures are larger than the corresponding

ones a week ago by 487,533 in wheat, and smaller by 480,173 in corn. The visible supply of wheat for the corresponding week a year ago increased 1,743,208 bushels.

Taking the average statements, Hutchinson is credited with owning two-thirds of the wheat in store in Chicago, or, say, 2,000,000 bushels, while his shortages on options are alleged to amount to 5,000,000 bushels.

A. J. McMillan, who has charge of the Manitoba immigration office at Toronto, says that 520,000 acres were seeded in wheat this year, against 430,000 last year. He estimates the crop at 16,900,000 bushels, being a yield of $32\frac{1}{2}$ bushels per acre, which is below last year's yield. Frosted wheat is selling at 80 to 90 cents a bushel. The crop of barley is much larger than last year, and considerable is being shipped to St. Louis and other American cities.

The owner of an elevator at Morrison, Ill., one Saturday night recently asked of Edward Snyder, a jeweler of that place, the privilege of placing \$2,000 in gold in his safe until the following Monday. Mr. Snyder readily granted the request, and placed the money in the safe. The next day the safe was broken open, and the gold and about \$500 worth of watches were stolen. Several days were spent in searching for the burglars, and the grain man, becoming suspicious of the jeweler, sent for a detective. Mr. Snyder was soon trapped with the \$2,000 in his possession, and was sentenced to spend three years behind the bars at Joliet.

The Treasury Department has been informed that large quantities of South American grain bags are being prepared in England to be shipped to the United States to take the place of "centals," which are supplied by India. When these bags are imported, filled with domestic grain and exported, there is no duty on them. Those prepared in England, or the "River Plata sacks," have the same marks and numbers as the "centals," and have been shortened to the length of the cental, but their width is more than the standard width of the "centals." The customs officers have been informed of the fraud, and it is not probable that many of them will be imported.

A couple of Kentucky farmers have adjoining lands a few miles south of Louisville in the fertile creek bottoms. For a long time each has claimed that his land was better than his neighbor's, so last spring they agreed that each should plant a measured acre in corn and cultivate it without fertilizers, the one whose acre gave the best yield to have the corn from both acres. Recently the corn was gathered and measured; Mr. Benson's acre yielded 111 bushels and Mr. Pfirmer's acre 109 bushels of merchantable corn. Mr. Pfirmer now says that he saw Mr. Benson, early in the season, carrying a sack of bone meal into the field, and that accounts for his extra two bushels.

The Michigan monthly crop and weather service report for December says that wheat goes into the winter in about the same condition as one year ago, or 87 per cent. of the average. During November it was slightly improved in the southern and central counties, and suffered some in the northern. The average yield of clover seed in the state for this year is 1.45 bushels, nearly one-fifth of a bushel above the average for nine years, but the acreage harvested is three eighths below the average. The condition of horses is 96 per cent.; cattle, 92; sheep, 95; swine, 98. Bushels of wheat reported marketed in November were 629,616, and since Aug. 1, 7,154,960. The rainfall for the month of November was below the normal in all sections, and the temperature 1.5 degrees above the normal for thirteen years.

"Old Hutch" and "Cap" Taylor, one of his brokers, and a character on 'Change, were holding an animated conversation yesterday. Animated conversations between them are quite common. "Cap" was advising "Old Hutch" not to press his pork on the market, and the latter was telling his broker to mind his own business, interlining his remarks with accusations to the effect that the "Cap" was "long 500 barrels," winding up the dialogue with an expressive "Blank you, I'll shake you out." "What did the old man say?" asked the spokesman of a party of smart brokers who had been watching the scene from a distance and grabbed "Cap" as he walked muttering by. "He gave me a pointer," was the response, "and if you don't give me away, I'll tell you what it was." The promise was duly given, and "Cap," leaning over until his pate formed the central place in a bouquet of heads, whispered, "He said, 'Cap,' if you ain't a blanked fool, you act like one."—*Daily Business*.

THE NEW YORK ELEVATOR LAW.

The case of the People vs. J. Tallman Budd of Buffalo, was decided in the Superior Court of Erie County, N. Y., on Nov. 26. The defendant was charged with collecting one cent per bushel elevating charges on 120,000 bushels of grain, in violation of the new law which fixes the maximum rate for the elevating, receiving and discharging of grain at five-eighths of a cent per bushel. District Attorney Quinby appeared for the people and Spencer Clinton for the defendant.

The charge was proven beyond question, but Mr. Clinton asked the Court to instruct the jury to render a verdict of acquittal on the ground that the new law is unconstitutional, conflicting with the constitutions of the United States and the State of New York. He claimed that the elevator owners have received no special privileges from the Legislature, by virtue of which that body is justified in fixing the rates. He claimed further that the scoopers charge a high rate for shoveling the grain to the leg of the elevator and the elevator owners cannot go to the Legislature for relief, but must pay the rates established by the Shovelers' Union.

Judge Titus said he had examined decisions of the United States courts and State courts bearing upon the points in question, and had found a precedent clearly established, which compelled him to decide that the law was constitutional, and accordingly he charged the jury to bring in a verdict in accordance with the facts as shown.

The jury retired for a few moments, and on their return rendered a verdict of guilty. Judge Titus then sentenced Mr. Budd to pay a fine of \$250 or stand committed to the Erie County penitentiary. Subsequently Mr. Budd was let to bail on his own recognizance, pending an appeal.

A NEW GRANARY AT BRISTOL, ENGLAND.

The last issue of the *Miller* of London, Eng., gives a short account of a new storage granary recently erected in Bristol, and a few particulars showing the manner in which the grain is handled on its being discharged from the grain vessel alongside the quay. The building is 232 feet long, 99 feet wide, and 95 feet high, with seven grain floors and a machinery floor, and is capable of holding about 70,000 qrs. of grain. The granary stands about 21 feet from the quay side, and underneath this space is a culvert extending rather more than the length of the building. In this culvert are four grain bands receiving grain through iron spouts in the roof from the vessel alongside, and delivering it into the bottom of four large bucket elevators, which raise the grain a total height of 120 feet. On the grain arriving at the top of the building it is discharged on bands on the top floor, which run transversely and longitudinally. By this means the grain can be thrown off the bands at any desired point into shoots leading down through all the floors. The bands, which are capable of distributing grain onto the floors at the rate of 300 tons per hour, are all 20 inches wide, supported on steel rollers, and are driven by Brotherhood's Patent Hydraulic Engines of about 80 collective horse power. The power is supplied by large pumping engines erected for the purpose at another part of the docks, the water pressure being 750 pounds per square inch. There are also eight hydraulic sack hoists in the roof, with steel ropes for raising and lowering grain in sacks. The grain is drawn off through the bottom floor, which is fire-proof, into five automatic weighing machines (Reisert's Patent), capable of weighing three sacks a minute, and sacked from them. Lines of rails are laid inside and outside the building, with turn-tables and hydraulic capstans for shifting the trucks. In case of fire, provision is made for a plentiful supply of water both from the town mains and from the pumping engines, and fire-cocks with hose attached are fixed on all the floors of the granary.

A party in the Northwest writes to *Daily Business* of this city as follows: "The wheat men are closing stations on all roads in Southern Minnesota, not ordinarily so as to leave any station without a buyer, but by changing off, one buyer going out at one point and the other at the next. Late and careful estimates of the wheat remaining on the Southern Minnesota line place it at two fifths of the whole crop, or somewhere near 650,000 bushels. This is all on the west end and substantially the whole of it will go No. 1 and 2 Northern. All of the poor stuff has been shipped out."

Fires, Casualties, Etc.

W. T. Lang's rice mill at Camden, S. C., was burned recently. Loss, \$5,000.

Leopold Brauns, one of the oldest members of the Chicago Board of Trade, is dead.

Scheibe's brewery at Centerville, Wis., was recently destroyed by fire. Loss \$90,000; insurance \$45,000.

Green & Co.'s warehouse at Essex Center, Ontario, collapsed recently, and 5,000 bushels of wheat ran out on the ground.

Jos. W. Bowne, weigher of grain for the New York Produce Exchange, died recently of heart trouble, aged 53 years.

The elevator of Johnson & Morrison at Bethel, Conn., was entered by burglars recently, who blew open the safe and stole \$400.

Rogers' elevator at Clearwater, Manitoba, was destroyed by fire Dec. 9, with 13,000 bushels of grain. Total loss \$15,000; insurance \$8,000.

The granary and warehouse of J. S. Austin at Ewing, Neb., was destroyed by an incendiary fire Nov. 13. Loss \$3,200; insured for \$2,000.

The office of L. Griffith & Co., grain dealers at Columbus, Ind., was entered by burglars recently, who blew open the safe and stole \$300.

Mrs. Helen Maria Hoyt, wife of Jesse Hoyt, the wealthy grain merchant who died in 1882, died Nov. 10 at her residence in New York City.

D. J. Swain, engineer at Mills & Barrow's elevator, Centralia, Mo., met with a very serious accident on the morning of Dec. 5. His hand was caught by a large belt of the engine and torn off.

Owen Duffy's elevator at Leavenworth, Kan., caught fire several times Nov. 17 from an adjoining building which was burned. The elevator and grain were damaged to the amount of \$525.


Greene & Dill's elevator at Greene's Siding, Dak., containing about 40,000 bushels of wheat, was destroyed by fire Nov. 29. It had a capacity of 45,000 bushels, and was valued at \$7,000. Loss on building and contents about \$50,000; insurance \$39,000. The origin of the fire is unknown.

The boiler in Strohl & Hamman's feed mill at Trowbridge, Ohio, exploded Dec. 10, and instantly killed Henry Hamman and Albert Kline, a customer, who was standing near by. Wallace Strohl and a boy were badly injured, and another boy slightly injured. A straw stack and outbuildings were set on fire by the explosion, but were not destroyed. Everything in the mill except the grinder was completely destroyed.

The front of Henry Diehl's malt house, Buffalo, N. Y., fell out, Dec. 6, and buried under the debris Fred Meyer, a malster, and Anthony Anse, a carpenter. Anse was rescued uninjured, but when the body of Meyer was found it was crushed almost flat. Meyer was thirty-five years old, and leaves a wife and two children. Six iron malting tanks were in the building, two being placed on every other one of the seven floors. These were supported by iron columns and frame work. Part of the building was about ten years old, the two upper stories being added recently. The building contained about 5,000 bushels of barley at the time of the collapse. Mr. Diehl estimates his loss at about \$8,000.

Without irrigation a great part of India would be comparatively barren and worthless. In Madras alone the revenue assessed on irrigated lands in the year 1886-'87 was \$8,395,000, of which about \$6,205,000 were due to irrigation. The total area of land which bore irrigated crops was over five and a half millions of acres, about 80 per cent. of which was irrigated in the first crop and the rest in the second crop. Some of the larger systems of irrigation, which draw their supply of water from the great rivers, have cost over \$18,250,000 to construct. The *Indian Engineering* says that the net profit in 1886-'7 on the entire capital invested in the Kurnool Canal, one of the largest, was 5.9 per cent.

The contract for the Chiqueto Ship Railway has been let to John J. Meigs & Sons of London, and work has already commenced. The cost is estimated at \$5,500,000, over half of which will be expended in the construction of the docks at the Bay of Fundy and Chiqueto. The Bay of Fundy dock will be 600x300 feet, and the one at Chiqueto will be 800 feet long, exclusive of the lifting dock, which will be 200 feet long. At each end there will be a hydraulic elevator which will raise and lower the vessels 40 feet, the distance between the level of the sea and the bed of the railway. The distance across the isthmus from the Bay of Fundy to the Straits of Northumberland is about 35 miles. It is claimed that vessels will save 600 miles by using this railway, besides having a safer route. The Dominion government has granted an annual subsidy of \$170,603 for twenty years to the company constructing the work, and with this aid the financial arrangements have been made for its completion.



ELEVATOR AND GRAIN NEWS

Heit Bros. have built an elevator at Bowdle, Dak.

A new brewery is to be erected at Parkersburg, W. Va.

The Haynes elevator at Weston, Ill., is being repaired

D. E. Sullivan will build an elevator at Plain City, O.

A cotton seed oil mill will be built at Rosedale, Miss.

A large cotton-seed oil mill will be erected at Macon, Ga.

S. A. & J. H. True will build an elevator at Portland, Me.

G. W. King, grain dealer, Jasper, Ontario, has assigned.

Hebrank & Rapp will build a brewery at Parkersburg, W. Va.

Griffin Bros. are building a new elevator at Arming-ton, Ill.

A large elevator will probably be erected soon at Tees-water, Ont.

Wm. R. Mumford will erect an elevator in this city to cost \$4,500.

The Fargo Roller Mill Co. will build an elevator at Fargo, Dak.

E. T. Head & Bro. will build an elevator in this city to cost \$30,000.

It is reported that an elevator will soon be built at Verdon, Neb.

Lockhart & Son, grain dealers at Los Angeles, Cal., have sold out.

Berlin, Ont., has a new elevator with a capacity of 30,000 bushels.

The National Brewing Co., San Francisco, Cal., will build a brewery.

There are prospects of a cotton-seed oil mill being built at Covington, Ga.

The linseed oil mill at Groton, Dak., will soon commence operations.

Sacramento, Cal., is to have a new brewery, backed by a capital of \$300,000.

Carrell & Parham succeed Carrell & Haskins, grain dealers at Adel, Iowa.

Leak & Nealy will build an elevator of 50,000 bushels' capacity at Franklin, Ky.

Cuthbert & Co., grain and implements, Newell, Iowa, have dissolved partnership.

C. Sandheger of Cincinnati, Ohio, will erect a large distillery near Reading, Ohio.

W. H. Hopkins, grain and general store, Weaver, Minn., has sold out to Johnson Bros.

H. L. Bushnell, formerly a grain buyer at Hoopeston, Ill., has moved to Danville, Ill.

F. T. Goldsmith & Co., grain commission merchants, New York City, have dissolved.

Dick Bros. Brewing Company of Quincy, Ill., will build an elevator to cost \$15,000.

W. E. Howard, grain dealer, North Hector, N. Y., has been succeeded by Snyder & Bro.

The Henderson Milling Co. of Henderson, Ky., will build an elevator at Sheffield, Ala.

Jamieson, Gault & Co., grain dealers, Mayville, Wis., have sold out to Chas. Ruedebusch.

The Zigele Brewing Co. are building a large brewery at Buffalo, N. Y., to cost \$150,000.

Pennsylvania capitalists will probably build a brewery at Cumberland, Md., to cost \$60,000.

Gurd's elevator at Wilber, Neb., received ten thousand bushels of wheat in one day recently.

D. Ferguson has been succeeded by John Scroggs in the grain business at Kirkman, Iowa.

The Farmers' Protective Association of Oconee, Neb., are erecting an elevator to cost \$2,500.

Titsworth & Casterline have succeeded J. E. Titsworth in the grain business at Dansville, N. Y.

A company has been organized at Shreveport, La., with a capital of \$60,000, to build a brewery.

Bennett & Snell will build an elevator at Buffalo, N. Y., with a capacity of 1,500,000 bushels.

M. Meyer & Co. Selma, Ala., will probably rebuild their cotton gin which was recently burned.

The Northern Dakota Elevator Co. recently placed in their new elevator at Medberry, Dak., a six-ton Chicago

scale, purchased through G. W. Crane, 239 Fourth avenue South, Minneapolis, Minn.

C. C. Pearce is building a double corn crib at Gibson, Ill., that will have a capacity of 5,000 bushels.

E. G. Styron & Co., grain dealers, Fayetteville, N. C., have made an assignment. Liabilities, \$40,000.

Wehr, Hobbeman & Gotthel are erecting an extensive brewery plant at Baltimore, Md., to cost \$150,000.

A. M. Felts, dealer in grain and agricultural implements at Gowrie, Iowa, is succeeded by Felts & Preston.

The Grand Trunk Railway is building an elevator at Midland, Ont., that will have a capacity of 750,000 bushels.

Hasenwinkle & Cox of Hudson, Ill., handled over 40,000 bushels of grain during the last ten days of November.

Borter & Carter, Deland, Ill., are building new cribs, and will store large quantities of corn during the fall and winter.

The Northwestern Elevator Company has built an elevator at Sioux Falls, Dak., with a capacity of 30,000 bushels.

The Denton Mill and Elevator Co. of Denton, Tex., have built an elevator of 30,000 bushels' capacity for storing wheat.

H. Winter of Philadelphia, Pa., and others will build a brewery and bottling works at Savannah, Ga., to cost \$50,000 to \$75,000.

An elevator of 30,000 bushels' capacity has been built at Peterborough, Ont., for the "Otonabee Flouring Mills" at that place.

The machinery is being placed in the new elevator of the C. P. R. R. at Fort William, Manitoba, and it will soon be ready for use.

Morris, Minn., has two elevators with a capacity of 50,000 bushels each, and during the last year they shipped 600 carloads of wheat.

The Western avenue elevator of Fond du Lac, Wis., has been moved across the river and placed near Allen & Treleven's roller mills.

P. C. Himebaugh of Omaha, Neb., says that of late from 44 to 111 cars of grain per day have been received at his elevator in that city.

The Metropolitan Grain, Stock and Produce Co. has been chartered at Alexandria, Va., by J. B. Halliday and others of Washington, D. C.

Omaha, Neb., has a new grain firm, with a capital of \$100,000. It is composed of Clarke Woodman, F. E. Ritchie and G. M. Nattinger.

Underhill & Parkson, Louisville, Ky., have purchased property in that city which they will convert into a grain elevator of 50,000 bushels' capacity.

W. S. McCrea & Co., Chicago, Ill., have been licensed to incorporate, to carry on grain, provision and seed business, with a capital stock of \$100,000.

The Tennessee Transportation Co. have purchased a number of boats plying on the Tennessee River, and will build a number of elevators along the river.

The Shaeffer & Meyer Brewing Co. are building a brewery at Louisville, Ky., to cost \$50,000. Within two years they will build works to cost \$150,000.

The Northern Pacific Elevator Co. recently placed an order with G. W. Crane, Minneapolis, for four five ton Chicago scales for various points on their line.

D. P. Heald, grain dealer at Conesville, Ia., is building a crib that will hold over 10,000 bushels. Conesville claims to be the cornopolis of Muscatine county.

A Chicago firm will soon erect a new elevator, 36x80 feet, at Staley, Ill. The same firm will also erect nine other elevators on the Champaign & Havana line.

The Fogarty & Coleman Brewing Co. have been incorporated at New York, N. Y., with capital of \$100,000. M. Coleman and others are the incorporators.

Roberts & Olver, Renville, Minn., have placed a four-ton Chicago scale in their new coal yard, purchased of G. W. Crane, 239 Fourth avenue South, Minneapolis, Minn.

The Ross Malt Co. has been incorporated to deal in grain at Chicago, with a capital stock of \$250,000. The incorporators are James H. Ross, T. A. Jebb and Wm. F. Jebb.

The E. H. Smith Company of Salix, Iowa, have filed articles of incorporation. The company has a capital stock of \$10,000 and will deal in grain. E. H. Smith is the incorporator.

During the past month, Chas. Morey of Picketts, Wis., has purchased and shipped over 40,000 bushels of barley from the farmers of that section. The price paid ranged from 55 to 65 cents.

Two thousand cars of wheat were on the tracks at Minneapolis, Nov. 29, waiting to be unloaded, mostly Manitoba cars. The blockade was so great that cars carrying wheat were ordered to be stopped on sidetracks outside the city. A large part of the receipts were low-grade wheat, so that each load had to be placed in a special bin and as all the bins were occupied, no more cars could be

unloaded each day than were shipped out. The railroad companies charged demurrage in many cases and ordered a number of cars to the elevators to be unloaded on their own account.

F. A. Hovey, one of the proprietors of the roller mill at Valparaiso, Neb., has been appointed receiver of the elevator at that place, which was formerly operated by F. A. Scoville & Co.

The Rock Island Railroad Co. are erecting an elevator at Horton, Kan., which will be one of the largest in the West. It will be 175 feet long, 95 feet high, and have a capacity of 175,000 bushels.

Benson, Minn., has three elevators with a total capacity of 125,000 bushels, that annually handle about 250,000 bushels of wheat. A warehouse is used for storing oats, barley and other farm produce.

W. H. Morgan, who has had charge of the elevator at Tolono, Ill., ever since it was built, has retired from active business pursuits. He has been connected with the grain business of Tolono for over twenty years.

J. B. Halliday of Washington, D. C., is president of the Metropolitan Grain, Stock and Produce Company, which has received a charter to traffic in grain and construct wharves, elevators, etc., at Parkersburg, Va.

The Farmers' Protective Elevator Association of Tobias, Neb., recently filed articles of incorporation. They have a capital of \$4,000, with which they will build an elevator and handle grain "for the protection of said company."

During the season of 1888 there was shipped at Ottawa, Ill., on the Illinois & Michigan Canal 297,450 bushels of corn, 362,900 bushels of oats, 1,700 bushels of wheat and many tons of other merchandise. There were 980 boats registered.

Murray Nelson & Co., Chicago, have been incorporated as a company with a capital of \$50,000, to engage in the business of grain commission and shipping. The incorporators are Murray Nelson, W. A. Dodson, J. A. Sibley and O. C. Nelson.

It is reported that the creditors of Clifton & Co. of this city, have agreed to settle for 50 cents on the dollar. The total indebtedness was about \$200,000. Of the 50 per cent. offered in settlement the Fowlers are understood to have furnished about \$35,000.

The Ogden Milling and Elevator Co. has been incorporated at Ogden, Utah, with a capital stock of \$200,000, of which \$150,000 has been subscribed. James Mack is president of the company; David Eccles, vice-president, and Led Abbott, secretary and treasurer.

The business men of Sterling, Neb., have formed a company to buy grain at that place. It seems that the farmers have been getting better prices for their grain at the neighboring markets, and the business men of Sterling have formed the company in hope of attracting trade.

A new elevator is being built at Sauk Center, Minn., on the line of the Little Falls & Dakota Railroad, which will place that market in direct connection with Duluth and Minneapolis. It will have a capacity of 30,000 bushels. Bert J. Sawyer will have charge of the business.

C. J. Kershaw, a member of the Chicago Board of Trade, who was caught in the Harper wheat deal last year, has been established in the grain elevator business at New Tacoma, W. T. The prospects of the undertaking are said to be bright, and Mr. Kershaw is in a fair way to get on his feet again.

The firm of Beckwith & Fleming, of this city, who are the Western managers of the Lehigh Valley line of steamers, the Rotterdam route, French, Eddy & Co., and a number of foreign marine insurance companies, will dissolve partnership Jan. 1, 1889. Mr. Beckwith will continue the business at the old place.

Granite Falls, Minn., has most excellent facilities for handling grain. An elevator with a capacity of 60,000 bushels was erected on the branch of the Manitoba road not a great while ago, and just across the river are two—one with a capacity of 200,000 bushels and one of 60,000 bushels' capacity, making a total capacity of 320,000 bushels.

The wheat damaged by fire in Green & Dill's elevator at Green's siding near Fargo, Dak., has been sold by the insurance companies to Mr. Barker, of Minneapolis, for \$7,600, he being the highest bidder. It is believed that a large quantity of the wheat can be sold for seed, and that Mr. Barker will clear two or three thousand dollars on the deal.

Smith, Northam & Co. are building an elevator at Hartford, Conn., which will be the largest in the state, and in fact the largest in New England, outside of Boston. The elevator is located between the tracks of the New England and Consolidated roads, and is of an irregular shape, one side measuring 52 feet, another 56, another 68 feet, and another 48 feet. It will have a capacity of 110,000 bushels.

Himebaugh & Merriam, who started in the grain business at Omaha, Neb., in 1877, with a small elevator, have had to build another one and enlarge the old one to meet the increase in business. These two elevators have a capacity of about 1,000,000 bushels, and in addition to these this firm owns forty country elevators. The grain business of Omaha is increasing very rapidly, and at the present rate of increase the Bee claims that the city will soon be one of the leading grain centers of the country.

WATERWAYS

The Welland Canal closed for the season Sunday, Dec. 9.

The New York state canals were closed at midnight, Nov. 30.

The total carrying capacity of the mercantile vessels of this country in 1888 is 4,191,915 tons, being an increase of 218,600 tons over last year. Forty-six per cent. of this increase was in our Western lake marine.

Navigation was closed on the Susquehanna and Tide-water Canal Dec. 10, and the Schuylkill Canal will be closed to-day. Both of these canals are controlled by the Philadelphia & Reading Railroad Company.

After many breaks, repairs and rebreaks, the Cornwall Canal was opened to navigation long enough before the season closed to allow a few boats to pass through. The total loss was \$551,500, of which \$375,000 were lost on grain.

Secretary Endicott has exercised the authority conferred upon him by definitely locating the western terminus of the Hennepin Canal at the mouth of the Rock River, and has directed Capt. W. L. Marshall, who has been entrusted with the making of the location survey, to make the canal location on the Rock River route.

Earnings of Erie Canal boatmen this season (ended Nov. 30), were not very satisfactory. There have been about 40,000,000 bushels of grain carried on the Erie Canal, with only a small profit over current expenses. The boatmen complain of competition from railroads. Boatmen also complain of exactions of scalpers.

The Sault Canal, which has cost the United States \$3,087,500, saved \$24,471,847 to the shippers last year, or about eight times its cost. During the year 5,494,649 tons of freight passed through the canal, which is almost as much as passed through the Suez Canal for the same time. It has been estimated that if the railroads had carried this freight they would have charged \$34,557,000 for their services, while it only cost \$10,075,153 to ship it by water.

The number of grain carriers that will winter in this city is smaller than for several years, and much smaller than last year. This is due to the fact that ore freights have continued good until the close of navigation, while coal freights were not particularly attractive and finally collapsed completely. Then, too, the experience of vessels for several seasons past, has shown that grain freights at the opening of the season are not worth struggling for.

The contract for the excavating and the timber work of the Sault Ste. Marie Canal in Canada, which will be built right opposite the American Sault Ste. Marie, has been awarded to Hugh and John Ryan of Toronto and Brocville respectively, W. J. Haney & Co. of Watertown, N. Y., being associated with them. The amount of the contract was \$1,200,000. It will take about three years to complete the canal, and the total cost is estimated at \$4,500,000.

The canal route from Montreal to Ottawa and Kingston has a total length of 246½ miles, with 59 locks exclusive of the Lachine Canal, and a lockage of 533½ feet. The new works on this route give 9 feet water in locks 45 by 200 feet. Canal navigation is secured between the St. Lawrence and New York by means of the Richelieu River and Chambly Canal. This has 9 locks with 7 feet depth of water; and connected by Lake Champlain with United States Erie Canal and the Hudson River, a total distance of 411 miles.

Gen. O. M. Doe and Capt. W. L. Marshall of the United States Engineer Corps, with Maj. Alex. McKenzie, have been appointed a Board of Engineers, under a clause of the River and Harbor Bill, by the Secretary of War, to make a survey of the Rock Island rapids, and ascertain "the best and most economical mode of securing a safer channel of greater width and depth, sufficient to meet the necessities of the commerce and navigation of the river, either by the construction of a canal around said rapids on the Illinois side of said river, from the head of the rapids near Rapid City, Ill., on the most direct and feasible route to the main river at the foot of said rapids, or by widening and deepening the present channel of the river at said rapids."

In response to the resolution of inquiry concerning the jurisdiction over the St. Clair Canal, Secretary Endicott recently sent to the Senate the report of the Chief of Engineers, which states that the question of jurisdiction is determined by the position of the boundary line between the United States and Canada as fixed by the commissioners June 18, 1822, under the treaty of Ghent. All of the canal west of the boundary line would be within the territory of the United States, and the portion to the east of the line within the territory of Canada. The exercise of jurisdiction by Canada over the exceedingly small portion of the canal to the east of the boundary could not in any way effect the use or control of the canal by the United States, and it was apparently the recognition of this fact and the desire to benefit the citizens of both countries

that prompted the adoption of Article 27 of the treaty of May 8, 1871, between the United States and Great Britain.

A foreign letter states that a scheme has been submitted to the city council of Brussels, Belgium, for constructing a canal from that city to the sea, deep enough for trans-Atlantic steamers. The company will undertake to finish the canal and have steamers running between Brussels and New York inside of three years after the concession of the council.

For the last six years work has been progressing on the Murray Canal in Canada. The canal is being cut through a thin strip of land which joins Prince Edward county, Ontario, on the west to the mainland, and when the canal is finished the county will be an island in Lake Ontario. It is a straight cut through this strip, over five miles long, 60 feet wide at the bottom, 80 feet wide at the top and deep enough for vessels of ordinary draught. The distance between points on either side of the isthmus will be greatly reduced. At present the distance by water from Trenton to Presqu'île is 140 miles; when the canal is opened, which it is expected will be early next summer, the distance will be eight miles. Vessels going from points along the northern shore of the lake to Montreal and points beyond can save 25 miles and will have a much safer voyage.

The railroads have been fighting the Erie Canal during the entire season just closed and have carried grain at ruinous rates. During the season the canal carried 10,000,000 bushels of grain, which is far below the amount carried during the two preceding seasons, but the total amount of freight carried is above that of 1886. The roads have never before been so persistent and carried grain so cheaply throughout the entire season. A leading boatman said, that even when they were carrying oats from Buffalo to New York for 1½ cents, the roads cut under it and took grain away from them when no one was in a hurry to get grain to the seaboard. He thinks that the roads are trying to beat out and ruin the canal interest, and says, if they keep up the fight, it will only be a question of time when the canal property will be rendered worthless and the business gone.

CANADIAN WATERWAYS.

The Canadian ship canal at Sault Ste. Marie is an assured fact, and as soon as that work is accomplished Canada will have its own water communication from Lake Superior eastward. The St. Clair Flats channel is, without a doubt within Canadian territory, and the Welland and St. Lawrence canals are Canadian works, of course.

But one of the most important of Canadian waterways is the recently opened ship channel between Quebec and Montreal, by which a depth of 27½ feet is obtained, and through which the largest class of merchant steamers, with full cargoes, can enter the port of Montreal as easily as they can that of New York.

Of course the value of this deepened channel to Canada cannot be fully estimated. Under the previous conditions the ocean trade of Montreal was very large. The tonnage of ocean going vessels arriving at that city during and since 1849 was as follows:

1849.....	tons,	37,703
1859.....	"	94,660
1869.....	"	250,863
1879.....	"	506,968
1887.....	"	870,773

The newly opened channel here alluded to is what is known as the Lake St. Peter Flats Channel, which, in 1853, was dredged to a depth of 16 feet. In 1859 the depth was increased to 18 feet, and in 1865 to 20 feet. At that time this was considered sufficient depth for the largest vessels, but it was soon found that greater depth was required, and in 1882 the channel was deepened to 25 feet. Recent dredging, as we have shown, has increased this depth to 27½ feet, which is sufficient to admit the passage of any merchant steamer that floats the ocean.

Montreal has now a harbor of unsurpassed shipping facilities, which is open to navigation more than half the year; and Halifax and St. John are two of the best and safest deep water harbors on the Atlantic coast, into which the largest vessels may have access every day in the year.—*Canadian Manufacturer.*

THE KNIGHTS OF THE CORNFIELD.

Five o' the clock and the teams are all ready to go; Frosty the morning is, but better the frost than the snow. It is hurry, bustle and breakfast, and up and out and away, Father and Freddie and Frank equipped for the work of the day.

Through the gap in the hedge rows they enter the battle field, Where, with serried ranks and pennons aloft, an army stands revealed. There in the husking gauntlets, nobler than coats of mail, Father and Frank and Freddie, knights of the corn land, all hail.

Forward the creaking wagon, heap up the spoils of the fray, Three against thousands, crushing them down, winning the well-fought day.

Serried ranks, and streamers aloft, ye cannot hope to win. Father and Freddie and Frank are gathering your treasures in.

The haze of the Indian summer lies like a soothing dream Over the far-off woodland and over the leaf-covered stream, Coveys of prairie chickens sail off in the misty morn; Oh, the world is filled with beauty when the cribs are filling with corn.

—*Bloomington Pantagraph.*

ITEMS FROM ABROAD

The Tankard Malting Company will build a grain elevator and malting house at Melbourne, Australia, to cost about \$150,000.

The *Mark Lane Express*, in its review of the British grain trade for the first week of December, says the sales of English wheat during the week were 446,568 bushels at 93½ cents, against 534,705 bushels at 93½ cents during the same week last year. Foreign wheat was depressed; Russian had declined 24 cents, and Californian 12 cents per quarter. Indian was steady.

The exports of Russian breadstuffs have reached unusual figures this year, as compared with former ones, as will be seen by the following comparative statement for the past three years:

	1888.	1887.	1886.
Flour, bbls.....	916,000	318,000	857,000
Wheat, bu.....	82,400,000	42,495,744	33,742,080
Rye, bu.....	44,082,400	32,874,760	28,336,640

An Adelaide paper claims that South Australia has enormous latent capacity for producing wheat, and that it can easily beat California in producing good wheat for export. The yield per acre does not average over seven bushels, but this is due to very careless husbandry. The average yield per acre in Tasmania and New Zealand, both of which are farther south, is eighteen and twenty-six bushels respectively.

During 1886 there were shipped from Odessa, the chief outlet for Russian grain, 1,906,260,000 pounds of grain. Last year it was increased to 3,022,260,000 pounds, and this year the grain shipments will greatly exceed all other years. As a rule, about 29 per cent. of the Russian wheat crop is exported via Odessa. Of late there has been some rivalry between several ports on the Black Sea, but the prospects are that Odessa will retain the lead.

France contains 130,610,038 acres, of which 124,934,195 acres are arable. Of this 47.64 per cent. is used for the cultivation of wheat, 11.55 per cent. for rye, and only 3.63 per cent. for maize. The population is about 30,000,000, and for every 100 inhabitants about 47 acres of wheat are cultivated, while in the United Kingdom, where the number of inhabitants is somewhat smaller, only 7½ acres are devoted to the cultivation of wheat for every 100 inhabitants.

In a generalized statement prepared from New Brunswick local crop reports the English Secretary for Agriculture estimates that the oat crop of the province would have been 4,000,000 bushels had there been no frost or bad weather, which damaged 60 per cent. of the crop. The crop of buckwheat would have been at least 2,000,000 bushels, which is 250,000 bushels above the average, but it, too, was damaged so that the yield was not over 1,250,000 bushels.

The Russian government is making extensive improvements at Odessa to accommodate the grain trade, which is growing very rapidly. It is also planning to build an extensive combination of railroads and canals through a part of Siberia to facilitate the trade with China. At present goods are transported across the desert of Kobi on the backs of dromedaries, which find sufficient food in the desert to support them on their journey two years out of three, but once in three years the rainfall is not sufficient to produce enough vegetation for their support, and a great many of them die.

Sir James Lawes' annual letter, relative to the yield of wheat at Rothamsted, has been published and is considered by Statistician Dodge to be more valuable for the general information it contains than for the specific deduction that the average yield of wheat in England, Ireland and Scotland may be calculated at 26½ bushels per acre, on the basis of the average yields of selected experimental plots at Rothamsted. In 1887 Sir James estimated the yield at 28½ bushels, which he said was probably too low. This was 3½ bushels below the yield of last year, and it is claimed that his estimate of this year's yield is about that much above the average yield.

A London correspondent of the *New York Financial Chronicle* writes that paper upon the subject of the Russian wheat supply, and says: "Too little is really known of the supplies that Russia can furnish. It appears to be certain that everything is being done to hasten forward exports from Russia. Whether this is due to a fear that winter may interrupt navigation in the Black Sea when the Baltic ports are closed by ice, or whether there is a desire to influence foreign opinion by running up the value of the rouble, or whether, finally, there are political or financial fears at work, there is a suspicion that the present rate of export cannot be maintained. Of course it is to be recollected that the Russian peasants have long been in financial difficulties, and it is natural, therefore, that they should take advantage of good prices to hurry their crops to market. But the fact remains, nevertheless, that there is a suspicion that something more is at work. It is noteworthy while the exports of Russia are so large, and the Finance Minister is inflating the currency on the ground of the magnitude and prosperity of trade, numerous failures are reported at St. Petersburg and elsewhere."

THE AMERICAN ELEVATOR AND GRAIN TRADE

— PUBLISHED ON THE FIFTEENTH OF EACH MONTH BY —

MITCHELL BROS. COMPANY.

(INCORPORATED.)

— OFFICE —

Howland Block, 184 and 186 Dearborn St.,
CHICAGO, ILL.

Subscription Price. - - - - \$1.00 per Year
English and Foreign Subscriptions, - - 1.50 " "

English and Foreign Subscriptions may be sent to W. H. Smith & Son, 186 Strand, London, W. C., Eng.

A. J. MITCHELL, - - - Business Manager.
HARLEY B. MITCHELL, - - - Editor.

ADVERTISING.

This paper has a large circulation among the elevator men and grain dealers of the country, and is the best medium in the United States for reaching this trade. Advertising rates made known upon application.

CORRESPONDENCE.

We solicit correspondence upon all topics of interest connected with the handling of grain or cognate subjects.

CHICAGO, ILL., DECEMBER 15, 1888.

GRAIN MANIFESTS FROM CHICAGO.

It has been discovered that the grain manifests from this port are entirely unreliable. The captains make, under oath, these manifests of the cargoes they have on their vessels, and all the statistics are based upon them. Late in the season Collector Seeberger found that many of the manifests were not correct, and warned the captains to be more careful in getting their clearance papers. Some of the captains paid no attention to this, and the captain of the propeller H. E. Packer went to the barge office and cleared for 55,000 bushels of corn before his boat had been chartered or even unloaded. It so happened that the boat was afterward chartered for corn, but it is very likely that the number of bushels was not correct. If the boat had been chartered for any other grain the manifest for corn would have been unchanged, and the cargo would have been added to the shipments of corn in the statistics of grain shipments. It has been said that probably one-third of the lake captains get their clearance papers before their vessels are chartered. In that case the statistics of grain shipments from this city are worthless, and a speedy and sure remedy should be found to prevent the clearance of vessels before the amount and kind of freight they will carry is known.

THE DECADENCE OF PHILADELPHIA'S GRAIN TRADE.

Philadelphia papers are making a great fuss about the immense falling off of the grain trade in that city and its effects upon other branches of trade. This year the exportation of wheat and corn from that port will not amount to more than 2,000,000 bushels, while nine years ago 32,000,000 bushels were exported. It is claimed that the decline of the grain trade of the city has caused a direct loss of \$1,825,000 to the various interests concerned in handling it. This is made up by the various items of expense usually incurred in conducting the grain business. The part of the money paid the railroad companies for transporting the grain that would have been expended in the city is estimated at two cents per bushel. Elevator charges are 1½ cents per bushel, and outward stevedoring expenses, including bagging rental for a part of the grain, are ½ cent per bushel. Allowing the grain merchant a profit of

one cent, makes a total of 4½ cents, which would amount to \$1,425,000 on 30,000,000 bushels, the decrease in the last nine years.

It is estimated that 400 steamers of a capacity of 75,000 bushels each would have been required to move this grain, and the average port charges and expenses would have been about \$500 per steamer, making a total of \$200,000.

If the grain had been stored six weeks and insured, at least \$50,000 would have been paid for the insurance. The bankers' commission for handling exchange and collecting drafts would have amounted to \$150,000. The loss of this trade has indirectly caused a loss to many other branches of business, and the total loss to the city cannot be computed. The whole blame for the decline of the trade is laid to the action of the railroads in favoring other ports, which they have been forced to do by the competition of the other roads. The *Record* says the wharves are rotting, the elevators are idle.

THE NEW YORK ELEVATOR LAW.

Another act in the drama of the McEvoy Elevator Law has been played in the conviction of the superintendent of one of the Buffalo elevators, for overcharges on grain, contrary to the charges ordained in that law. This case, like the one in Brooklyn, was appealed, as it is the intention of the elevator people to fight the McEvoy Law up to the court of last resort. The purpose of the elevator people to evade the law as well as fight it, was shown this week in the examination of several witnesses by the Senate committee that is investigating trusts. They declared that the McEvoy Law was already a dead letter and its provisions as to elevator charges constantly violated. One of the witnesses stated that there were forty houses embraced in the trust, and remarked further, what is well known, that the houses closed up received a percentage of the profits made by those in operation. Where is the pneumatic barge "Cyclone"? We fancy a few such barges could enforce the McEvoy Elevator Law as to charges better than all the state courts, with all due respect to the machinery of the law.

"CROP REPORTING."

The reader is probably aware that the Chicago Board of Trade has entertained a strong antipathy to the monthly bulletins of Statistician Dodge of the Department of Agriculture. This hostility found its culmination at the recent session of the National Board of Trade in this city, when the delegates of the Chicago Board asked the National Board to adopt a resolution to the effect that the government should discontinue its monthly bulletins, on the ground that they were strictly unreliable. Mr. Baker said that one of these monthly reports gave the yield of Dakota wheat at 13 bushels per acre at a time when not a single grain of Dakota wheat had germinated. He showed a discrepancy of 11,000,000 bushels between the report of December and that of the following June; and Mr. Pope reinforced Mr. Baker's remarks with other figures of a similar nature.

The National Board, however, did not deem it wise to deal with the question in the radical manner asked for by the Chicago Board, but adopted a resolution, instead, asking the government to make larger appropriations to the end that the service might be improved in the matter of compiling crop statistics. The resolution asked the Department of Agriculture to take under consideration the expediency of establishing agencies at the several state capitals, with a view to collecting statistical information and transmitting the result to the Department by telegraph, with a view of securing a more expeditious compilation of the figures and their publication not later than the 5th of the month, instead of the 10th, as is now the case.

It was, no doubt, wise to adopt such a resolution, rather than one asking for a discontinuance of the monthly bulletins altogether. That these reports are defective, perhaps all will admit; but crop reporting is no easy task, and somewhere be-

tween the field and the printing of the monthly reports guesses must be made. This fact cannot be disguised, for crop reporting is not an exact science, by any means. It is true that the errors in a large number of estimates made by an expert are pretty likely to partially balance each other; but the fact remains that there is necessarily a large amount of guessing done somewhere in the compilation of crop statistics, no matter by whom such compilations are made. Now, we think Mr. Dodge has done pretty well, on the whole, though we don't think he should attribute the opposition to his bulletins, to the perversion of speculators. Both he and Mr. Colman have expressed themselves favorable to adopting any feasible plan for increasing the efficiency of this service, and Mr. Dodge's critics owe it to him and themselves to make suggestions in good faith. It is easy to find fault with a great work like the compilations of the Department of Agriculture, which from the very nature of the work done, must forever be only approximations to the truth. The most that can be done is to get material enough to make these approximations as close as possible.

KEEPING GRAIN FROM FROSTING.

The one thing which seems likely to hinder the growth of the Northern parts of Dakota and Minnesota, as well as of Manitoba and the Canadian Northwest, is the recurrence of early frosts with disastrous effects on the wheat and barley crops. This would seem to be an insurmountable obstacle; but it is claimed that man's ingenuity has been equal to the task of outwitting Jack Frost and saving the immature crops from being nipped and rendered worthless or partially so.

The remedy, in brief, is the use of "smudges." The philosophy of the thing is this: the frosts come only in clear, dry weather, when no wind is blowing. If a smudge be kindled the smoke from it will form a sort of blanket and prevent the too rapid radiation of heat from the earth. It is said that whole fields of wheat were saved in Manitoba the past season by the timely application of smudges kindled where they would do the most good. If the remedy be really efficacious, it has the advantage of being a very cheap one and one easily applied. We shall await with interest the further trial of the smudge.

USING FROZEN WHEAT FOR SEED.

A good deal of wheat was frozen in Northern Dakota, Minnesota and Manitoba during the last season, and a great deal is being written and said upon the question of using frozen wheat for seeding purposes. Professor Saunders of the Central Experimental Farm, Ottawa, Canada, has published a letter inviting grain growers to send him samples of frozen wheat that he may test it and see whether it would be profitable to use it for seed. The tests made with frozen wheat at the Experimental Farms last year showed a degree of vitality ranging from 95 to 51 per cent. Those lowest in vitality were also weak in growth. The Professor says that a grain of wheat consists of two parts, the germ of the future plant and a store of food on which it may subsist till it is able to draw nourishment from the soil. The germ may be partly injured and the stock of food in the husk may be defective, but if the soil is full of vital force and the weather favorable for a week or two, the young plant will in a few days get hold of the soil and shift for itself. If there is a cold backward spell just after the seed is planted, the want of vigor in the germ and of food inside the husk will be very likely to produce a weakly set of grain. A great deal depends upon the season and soil. Wheat that gives a good yield on average soil during an average season, on old soil during a less favorable season will produce a sickly stand of grain and give a poor yield. Frosted wheat has been known to give a better yield than sound wheat, but of course the difference in the quality of the seed was made up by richer soil and a more favorable season.

The general opinion is that the percentage of frozen seed which will germinate varies as the

quality of the seed, and during an average season it is very probable that 75 per cent. of frosted wheat will germinate, but owing to the lack of vitality much of it may perish and an extra amount should be sown to make up the loss.

THE MEASURED BUSHEL.

In the November report of the Department of Agriculture, Statistician Dodge comes back at his antagonists and devotes a great deal of space to explaining the methods used in compiling the crop statistics. The harvests of all countries are first reported in dry measure, and not by weight. The first estimates are based upon the records of thrashers, and they go by the measured bushel. At the end of the year the first estimate is perfected and published.

The next report, which is issued in March, gives the quality and the weight of the grain, which is gathered by correspondents, state agents, millers, inspectors, and from various other sources. Mr. Dodge says: "There is in every year a great difference in the weight of wheat of different varieties, in different sections and soils, and under diverse cultivation. The extreme variation is very great, ranging at least from 50 to 68 pounds, and the average less than 60 pounds, as a rule. For instance, the average of estimates of last year was 58.5 pounds; for 1886, 58.4 pounds; for 1885, 57 pounds; for 1884, 58.3 pounds; for 1883, 56.9 pounds. The effect in modifying the potential value of production, at least so far as indicated by weight, is as follow:

Year.	Weight per bushel.	Measured. bushels	Bushels of 60 pounds.
1883.....	56.9	420,154,500	398,435,481
1884.....	58.3	512,763,900	498,545,873
1885.....	57.	357,112,000	339,496,449
1886.....	58.4	457,218,000	444,777,202
1887.....	58.5	456,329,000	445,047,538

This shows that the average weight of a bushel of wheat in this country during the last five years has been 57.9 pounds. France, according to the *L'Echo Agricole*, has produced wheat that averaged 59 pounds for the last ten years. In 1887 the average was 61.2 pounds per bushel, and this year it was 57.3 pounds per bushel. In dry countries good wheat is heavy, but it is not at all probable that any country can give a ten years' average of 60 pounds per bushel, that is, of course, taking the average of all the wheat grown in the country.

BRITISH GRAIN CROPS.

The English crop report recently issued by the Agricultural Department of the Privy Council, shows that there has been a break in the steady decline of agriculture which has been going on for several years, and that the acreage was increased instead of decreased. The total number of acres under cultivation in England, Scotland and Wales was 32,684,399, which is an increase of 32,371 acres over last year, being an increase of 9,655 acres in England, 9,716 acres in Wales, and 13,000 acres in Scotland. Twenty-five per cent. of the total acreage was under grain crops. The total area under wheat was 2,564,000 acres, an increase of 246,000 acres over 1887, and 90,000 bushels above the average of the preceding five years. This increase is claimed to have been influenced by the relative high value of straw, and that the wheat crop of last year proved the best paying crop the farmers had.

There was 2,085,561 acres under barley, an increase of 405 acres over the number of acres sown in 1887. Last year's average of barley was the smallest ever recorded, and this year's acreage does not show much of an increase. Poor prices and a large increase in the importations of foreign barley are given as the causes for the falling off in the acreage.

The number of acres sown to oats was 2,882,200, a decrease of 205,700 acres from last year, but last year's acreage was the largest ever reported. The general opinion of the collectors of the reports is that the marked decrease is caused by the recent unremunerative value of the grain, the poor yield of last year's crop, and the increase in the importations.

The total acreage under grain crops in 1888

was 8,187,700 acres, an increase of 41,800 acres over 1887, but nearly a million acres less than in 1878.

The report of the receipts from British India show that the amount of grain supplied by India has decreased nearly 33 per cent. in the last three years. In 1885 India sent 12,170,251 hundredweight of wheat to England, while last year only 8,511,512 hundredweight was sent, and it is not expected that more than that will be received this year.

MILLERS AND HIGH PRICED WHEAT.

A large number of millers will meet at Milwaukee on Dec. 17, to take some action looking toward bettering the flour situation. Stocks of flour have accumulated everywhere, prices have declined, the demand has fallen off and yet there has been but little reaction on the price of wheat. The millers expect to improve things by shutting down or running light until the surplus flour stocks are worked off. In a recent issue the *Minneapolis Market Record* shows the changes in the situation as compared with a year ago, and says: "A year ago to-day No. 2 winter wheat was worth in New York, for the May future 95c. In Minneapolis No. 1 Northern, for May, on the same date was worth 80c, or the New York price was 15c above the Minneapolis price. To-day the Minneapolis price is \$1.15, New York price is \$1.11. That is, Minneapolis is relatively 19c above New York as compared with one year ago. A point for Minneapolis millers to ask New York millers to explain is how the former are to get back \$1 a barrel paid out in extra cost of wheat."

Proceeding with the discussion the *Record* says: "That wheat is too high in the Northwest for any other purpose than speculation is too plain a proposition to discuss. There is, apparently, no bread-eating people on earth, outside of the Mississippi valley, paying for flour a price equivalent to the relative cost of wheat right here where it should be the cheapest. That is not because wheat is now scarce, but because it is told that before another harvest wheat will be scarce. As it is, the miller here has paid so much for his wheat, and continues to pay so much for it, that he cannot make flour to compete with other millers anywhere. If the wheat here should be held so much above the common level through the year it is not apparent that mills will be able to run at any time excepting irregularly, in which case the wheat may last longer than the carriers of it may desire."

THE ELEVATOR QUESTION IN DAKOTA.

The trouble between the elevator men, railroads and farmers in the Northwest seems to be perennial. This time it crops out in Dakota, and has come before Judge Rose of Dickey county for adjudication, though whatever the judge's decision may be, the case is quite sure to be appealed. The facts of the case are as follows: Jay F. Hagerty of Monango recently built a warehouse on the Manitoba company's right of way at Silver Leaf, after being refused permission by the railway officials. As soon as the building was up the railway company procured an injunction restricting Hagerty from using his warehouse.

Before Mr. Hagerty commenced building his elevator, it seems that he took legal advice on this subject. His attorney advised him to this effect: "That the warehouse and transportation laws, together with the provisions under which the railway commissioners act, will enable him to buy and ship grain or other produce on the railway company's land at any station, no matter what the company's contract with any other shipper may be. In other words, a railway company has not the power to maintain or aid any shipper in maintaining a monopoly of the grain business, even on its own property or over its own line. The full and untrammelled shipment of grain as contemplated by the statutes means among other things that all shippers shall have an equal chance

for the convenient and economical handling of grain. To compel a buyer to go several rods away from a railway track, while another is given all possible track facilities, is the very opposite of just dealing and fair play."

It was claimed that the railway company got out the injunction against Hagerty in the interest of the Northwestern Elevator Company, which has a house at Silver Leaf. This Mr. A. B. Robbins, manager of the elevator company, explicitly denies. He says that no contract exists between the Manitoba road and his company for the exclusive right to build elevators on the railroad's right of way; nor does the trouble between Mr. Hagerty and the road have any reference to the Northwestern Elevator Company. As to the contract, Mr. Robbins says: "The only contract this company has with the Manitoba road, or ever has had, is a lease permitting us to erect elevators on their right of way of a capacity of 30,000 bushels, and providing that we shall maintain a public elevator the year through, and shall conduct the business according to the laws enacted by the legislature where our elevators are located. This is a pretty strong sort of a lease for any company to accept, but I think that the wisdom of the railway company in insisting upon such leases will be conceded by any one having any knowledge of the business, and of the annoyance and trouble that has come by having the right of way at some points covered with buildings which are totally unfit for the requirements of the business."

The railroad's side of the story is that they propose to have something to say about the character of warehouses which are built on their right of way. They believe the restrictions they place upon the building of warehouses on their right of way are reasonable and in the interest of the public. These restrictions are those mentioned above by Mr. Robbins. As the case stands now, it is a pretty fight between Mr. Hagerty and the Manitoba.

OUR AGRICULTURAL PRODUCTS.

The report of the chief of the Bureau of Statistics of the United States Treasury Department shows that during the nine months ending Sept. 30, 1888, we exported from Atlantic ports 5,632,752 hundredweight of wheat, and from the Pacific ports 7,210,157 hundredweight of wheat, to Great Britain and Ireland. During the same period in 1887 we exported to the same countries 18,502,033 and 7,676,672 hundredweight from the Atlantic and Pacific ports respectively.

During the same period of 1887 we exported 25,030,884 hundredweight of corn, while this year we exported 19,764,963 hundredweight. This shows a great decrease in the exportation of both wheat and corn.

Mr. Switzler is of the opinion that it is of very little consequence to the people what caused the decline, and that the farmers and all other classes would be much better off if not a bushel of grain went abroad. If the American farmers would market their grain at home it would be of little consequence to them how the fields of other countries were yielding.

The *American Exporter* says that only 4 per cent. of our corn crop has been exported during the last seventeen years. The price is ruled by the home supply, and if it is high, foreigners do not buy; but if low enough to compete with foreign feeding stuffs, a larger amount is exported. The railroads carry but a small per cent. of it, less than 20 per cent. crosses the state lines. About 86 per cent. is used for feeding purposes, 10 per cent. for human food, and 1 per cent. in the manufacture of spirits. There are so many things for which it can be used for that the lack of foreign demand for the raw grain would prove a blessing.

LAST year 33,000,000 grain bags were used in shipping the wheat crop of the Pacific coast, and it is very probable that 35,000,000 will be used in shipping this year's crop. Only about 2,500,000 of these are produced in California, and the rest are purchased in Calcutta. After they are filled with grain and shipped to Liverpool, they are returned to New York as second-hand bags.

Editorial Mention.

THE Chicago report of the visible supply of wheat on Dec. 3 made it 36,082,482 bushels. *Bradstreet's* figures out 51,394,546 bushels as the visible supply of wheat on Dec. 1.

ODESSA has a regular grain blockade. The harvest of wheat in Southern Russia was immense, and it is said that there is now in Odessa in the neighborhood of 20,000,000 bushels of wheat. The warehouses are all full, and yet grain continues to pour in.

HARPER, of the 1887 corner fame, became suddenly insane in the Ohio penitentiary at Columbus on the anniversary of his birth, Dec. 13. If it could be believed that his insanity arose from remorse over the suffering caused by his wrecking the Fidelity Bank, it would be a tribute to his manhood.

AN Eastern gentleman has invented a machine which will make 500 feet of chain a day, in two sizes, from wire. The smallest size can sustain a weight of 400 pounds, and can be used for so many different things that it is called "The Universal Chain." One great point in its favor is that it can be sold for less than cord.

THE shipments of barley from San Francisco for this season show a marked increase over last year's shipments. Last season no barley was shipped to Europe previous to Dec. 1, while this year over 19,500 tons had been shipped prior to that date. About 13,000 tons have been shipped to New York and Australia, and 8,662 tons were sent East overland during September and October.

IT will be seen from the card, on another page, that L. S. & A. J. Blake are successors to the Blake-Beebe Co. of Racine, Wis., in the manufacture of the Champion Separator. This is a well-known machine, and is made in a large number of sizes to accommodate it to different requirements. The manufacturers will be pleased to hear from elevator men and others who may want separators for any purpose.

GREAT BRITAIN has a law which requires every buyer of native grain to make a weekly report of his purchases to a government agent appointed for that purpose. This report must specify each purchase, state the seller's name and business, the price paid, the weight or measure by which it was bought, and whether it was bought or sold on account of any other person. Any one convicted of violating this law is liable to a fine of \$100.

THREE of the leading elevators at Duluth have reduced the charges for storage, in hope of receiving more wheat for storage. All grain received prior to Nov. 15, on which winter storage has accrued, will be charged for the term prior to winter at the rate of 1-2 cent for each fifteen days or fractional part thereof; thus 4 1-2 cents will be charged for grain that is stored from Oct. 30 to May 15, and 5 cents for that which is stored from Oct. 15 to May 15.

A FARMER of Wilson county, Kan., has succeeded, he says, in producing a corn that stands the dry seasons better, and is more solid than any other variety grown on the same kind of land with the same cultivation. He claims that nearly every stalk produces two good ears with from 1,000 to 1,500 grains per ear, which are wide and deep, and far stronger for feeding purposes than many other varieties. With ordinary cultivation it yields 125 bushels per acre. If planted on the

first of May it will be ripe and ready for market the last of August. It is so early, he says, that the dry, hot summer does not affect it, like other varieties.

THE Illinois Railroad and Warehouse Commission has refused to grant the petition for the appointment of an inspector of grain at Joliet, with authority to issue certificates of Chicago inspection, as the law provides for an inspection only at Chicago.

PRIME, the well-known crop statistician, says that he does not see how the agricultural interests of the Northwest could be in a better, sounder, and more prosperous condition than at present. He says the farmers in the wheat belt are in a better condition to hold their crops than they have been for years, and they have them all gathered and ready to send to market. All over the country winter wheat is in excellent condition, far better than a year ago.

THE railroads very properly object to their cars being used for storage purposes; but in their anxiety to prevent it, they have done receivers considerable injustice by levying demurrage charges of two dollars per car for each day the car remains unloaded. The receivers are kicking, not because demurrage is charged, but because the time allowed before the charges commence is too short. A committee has been appointed to wrestle with the roads on the subject.

READERS interested in feed grinding will notice the advertisement, on another page, of Bowsher's Feed Grinding Mill. This device is for ear corn and all kinds of small grain, and is sold with or without elevator. The self feeder for ear corn obviates any difficulty from that source. It is a strongly built machine, and has met with a ready sale. The manufacturer, N. P. Bowsher of South Bend, Ind., will take pleasure in corresponding with those who may contemplate an improvement or addition of this kind to their plant.

THE Appellate Court of Illinois has decided that when a warehouseman has a lien on grain or other goods for storage, such lien is not transferable, and where a warehouseman failed and had large amounts of money due from parties having goods stored in his warehouse, for which he had a lien on the goods, the court held that a judgment creditor of the warehouseman could not enforce this lien, and a levy on the property stored to secure such lien, was void and gave the levying creditor no interest.

IT is denied that there is any danger of the stock of contract wheat in New York getting out of order. Not only is a general denial entered, but it is flatly charged that some operators in Chicago manufactured the yarn for the purpose of injuring New York's trade. It is stated on authority that the contract wheat in New York has rarely been in better shape than at present. The basis of the charge that the contract wheat had been rendered unfit for carrying by mixing, seems to be the fact that considerable ungraded wheat had been merged into the contract grade. This ungraded wheat is now alleged to have been of a better quality than the regular No. 2 Red.

IT has been charged that the Western Union greatly favors the bucket shops in the transmission of market quotations and that the bucket shops of New Orleans, Omaha and other points, receive the quotations much quicker than the correspondents of the Chicago Board. An official of the Western Union said in answer to this charge, that it was absolutely false and very absurd; for if the company dared to show any discrimination it would be more likely to favor its best patrons. The correspondents of the Board place all their deals by telegraph and each deal causes two to four and sometimes more messages to be sent over the wires. The bucket shops simply bet that their patrons are guessing the market wrong and have no occasion to use the wires except to obtain the quotations. In regard to

leasing wires to the bucket shops he said, if the company has wires to lease they cannot discriminate between parties but must lease to whoever apply.

THE suit of Joseph T. Hill and other creditors of C. J. Kershaw, growing out of the wheat deal in June, 1887, came up before Judge Gresham Nov. 22, for an order on the American Exchange National Bank and others for the production of papers and books. The court ordered that the creditors' attorneys should be allowed to see all the documents asked for. The Appellate Court gave a decision in the case Dec. 7, which will probably prevent the creditors from obtaining much relief. They cannot touch the private property of the individual members of the firm and the only thing they will get will be the assets of the firm.

THE Russian government being in need of extra funds, the Minister of Finance has proposed a new plan whereby the money can be raised. According to his plan a tax of a quarter kopeck will be charged upon each of the first twenty eggs laid by a hen. It is said that there are 100,000,000 hens in Russia. At a quarter of a kopeck on each of the twenty eggs laid by each hen would be a tax of 5 kopecks on each hen, and would give a total revenue of 5,000,000 roubles, or about \$2,910,000. The tax upon duck eggs will be the same, but the minister has not yet decided whether to make the tax on turkey eggs proportionate to the size or not.

THE New York Produce Exchange statistician made an error in his report of the visible supply of wheat recently that is said to have cost wheat traders on the Chicago Board \$25,000. The supply on the rivers and canals was stated as 57,600 bushels, when it should have been 576,000 bushels. On the strength of the report, the May option was pushed up to \$1.09 1-8—1 1-8 cent above the opening, and the trading was lively. When the error was corrected, the report showed that there was an increase of 420,000 bushels in the visible supply, while before it showed a decrease. The moment the mistake was corrected there was a wild rush to sell, and the market fell to \$1.07 3-8. The members of the Board were very indignant.

DURING the war Cobb, Christy & Co., Cincinnati, Ohio, contracted to deliver a large amount of corn to the Union army in the South, and purchased a great deal along the line of the Illinois Central Railroad. When the time arrived for the shipping of the corn the railroad had all it could do to transport troops and munitions of war. Before it would receive the corn a large portion of it had spoiled, and the government refused to accept the other part on account of the delay in shipment. Cobb, Christy & Co. claimed that their loss exceeded \$1,000,000, and brought suit in the Iowa courts against the railroad company to recover damages. The Iowa Supreme Court decided in favor of the company, and the suit was afterward brought in a new form in the Circuit Court of McLean county, Ill. At present the case is before the Appellate Court at Springfield, Ill.

THE officials of the Michigan Central recently discovered a forgery on way bills of shipments of grain from this city to Eastern points, which will probably cause quite a sensation on the Board of Trade when all the facts are made known. The way bills were made out and charged on the basis of 2 1-2 cents less than the rate agreed upon from Chicago. The chairman of the Central Traffic Association discovered it and notified the Michigan Central officials who stopped the shipments. The road did not charge the fraud directly to the Board of Trade firm, but to the employees of the firm and its own employees. One of the officials of the road said that the Central was guilty of no wrong act, but that the road had been imposed upon, and the parties who perpetrated the fraud would have to smart, as a thorough investigation would be made. The freight agents of the Cen-

tral's competitors intimated that the road was the guilty party.

It is estimated that the receipts of wheat at Minneapolis for the present year will greatly exceed the receipts of any previous year. Up to Dec. 10 over 41,000,000 bushels had been received, and the total receipts for the year will probably be between 45,000,000 and 50,000,000 bushels.

We hear incidentally that Mr. Simeon Howes, proprietor of the Eureka Works, Silver Creek, N. Y., will have a full line of his well-known Eureka Grain Cleaning Machinery at the great forthcoming Paris Exposition. If premiums are to be awarded, the Eureka expects to stick by its record and carry off the honors.

AMONG the new cards in this issue is that of The Flour City Mfg. Co. of Minneapolis, Minn., advertising Fisher's Registering and Recording Scale Beam. The utility of the device will be apparent to those who will read the card. We may add that a number of these attachments are in use in nearly all the elevators and many of the mills of Minneapolis. They are also used in a number of elevators in this city and throughout the Northwest. The manufacturers will be pleased to give particulars to parties who will make inquiry.

A STATEMENT of the commerce through the Sault Ste. Marie Canal issued Dec. 7 shows that the value of the freight shipped through the canal this year exceeds that of last year by \$3,000,000, the total value being \$82,000,000. As compared with last year, there was a decrease of 17 per cent. in the number of vessels, but an increase of 17 per cent. in the tonnage. This is explained by the fact that small crafts are leaving Lake Superior. A little over 18,000,000 bushels of wheat passed through this season, against 23,000,000 bushels last year. The shipments of corn were greatly increased.

OWING to the hot July winds, the corn crop in Western Kansas is almost a complete failure again, this year. The area thus affected is not as large as last year, but the failure is felt more severely; for, to commence with, the farmers were in a worse condition than last year. The railroad commissioners have asked the railroads to give a one-half rate on grain shipped to Western Kansas. In their communication to the managers of the railroads the commissioners state that many of the farmers in the western part of the state will find it difficult to provide necessary food for stock, which must be supported in order to conduct farming operations in the future.

SINCE the Central Traffic Association announced that the East-bound freight rates would be restored Dec. 17, the shipments East have been greatly increased, and the roads running east from this city did more business last week than they have any week for several years. The total shipments (live stock excepted) from this city over the Eastern roads to through and local points in the East reached the enormous sum of 93,391 tons against 63,361 tons the preceding week. Of this, 37,714 tons was corn, and 1,676 tons was wheat. The through shipments of flour, grain and provisions to seaboard points and for export was 59,623 tons, against 36,360 tons the preceding week.

THE great steal of wheat from the Union Elevator at Minneapolis, which was discovered several months ago, has not yet been entirely settled, and the experts have found that the steal was much larger than was at first supposed. Holcombe, the superintendent of the elevator, evaded arrest and went to Texas, where he is now engaged in business. Mason, the foreman of the elevator, paid \$2,500 to settle the case against him. Harley, formerly bookkeeper for D. C. Moak & Co., paid \$1,500 in settlement of his case. It is now claimed that he was merely a tool of persons in advance of him who were more closely

connected with the steal, and that some had a hand in it who stand high in the social and financial centers of the Northwest. An effort has been made to settle the matter, but it is said that in spite of this the principals will be exposed.

THE chief grain inspector of Minnesota has issued a report which shows that during the year there were 115,215 cars of wheat handled, against 113,923 cars for the same period last year. This is a gain of 1,292 cars over last year, but in spite of this the net number of bushels of wheat is less than last year. This great loss is owing to the dirty condition of the wheat when received at Minneapolis, Duluth and St. Paul. The inspector says that in the 67,000,000 bushels received and inspected this season, the dirt ranged from one-half a pound to ten pounds to the bushel. If farmers would only do more thinking and less kicking they would easily see the great benefit to be derived from marketing clean grain. By cleaning their grain they would get a more satisfactory grading, and save the freight on the dirt, as well as the cost of cleaning.

THE Illinois Railroad and Warehouse Commission has refused to allow the railroads to make charges for the delay of customers in unloading coal cars. Several roads entering this city have complained of the delay, stating that some of their cars had been standing on tracks a month before they were unloaded. This causes a scarcity of empty cars, and other patrons have to wait. The courts have decided that the railroads cannot charge for the time the cars stand upon the tracks unloaded unless the coal is placed in a warehouse. The roads proposed to the Board to charge only for time the cars remained unloaded on the tracks over four days, and to give a rebate when they were unloaded promptly. The Board refused to do this, and as the roads have failed to obtain any relief, they will try and have the next legislature pass an act to prevent the detention of cars.

THE FRENCH DUTY ON WHEAT.

FRANCE is agitating the question of abolishing the import duty of 26 1-3 cents a bushel on wheat, and a great deal is being said and printed on both sides of the question. While there is a tax on flour and wheat imported into the country, bread is admitted free, consequently people living near the boundary can procure the staff of life much cheaper than those living in the interior. To adjust this unequal taxation, either a tax must be placed upon bread or the tax taken off of wheat and flour. If a tax were placed on bread the wage earners would rise en masse and they are now crying for the removal of the duty on wheat and flour. The millers and the agriculturists strongly oppose the removal of the duty, and it is not very likely that it will be taken off. It is claimed that the great deficiency in this year's crop will force the country to make large importations of wheat and that the duty alone will amount to about \$25,000,000.

DOTS AND DASHES.

A man who has one jug of corn whisky and another of rye refers to them as his grain elevators.

A run on wheat at Douglas, Man., lately, sent it up to \$1.25. This price was paid for one load.

The corn crop, as a whole, is the largest ever grown. It exceeds last year's crop by 555,000,000 bushels.

First broker.—They say Old Hutch is a small eater."

Second broker.—"May be so; but he's a big gobbler."—*Ex.*

It is estimated that 100,000 bushels of corn were ruined by the overflowing of the Ohio River in Southern Indiana.

The Indianapolis elevators, on Dec. 1, contained 492,210 bushels of grain, against 467,690 bushels for the same day last year.

The Chicago *Herald* says that the most gratifying statement in connection with the corn crop of Nebraska is that the farmers, as a class, are in much better financial condition than they have been for some time, and they

do not like to take 8 to 10 cents less per bushel than last year when the present crop gives evidence of being very sound.

Shipments of wheat are now going to St. Paul and Minneapolis rather than to Duluth, on account of the close of navigation.

The manufacturers of hominy have some trouble in obtaining the quality of corn they want, and have hard work to keep up with their orders.

Recently, for the first time in the history of Iowa, you could trade a bushel of corn for a bushel of apples, both being the same price, 25 cents a bushel.

Patrick Egan, the ex-Treasurer of the Irish Land League, and now a prominent grain dealer at Lincoln, Neb., is spoken of as that city's next postmaster.

The other day the daughter of a farmer went out into a cornfield, carrying with her a copy of Miss Rives' "The Quick or the Dead." The corn was shocked.—*Norristown Herald.*

The naked hills lie wanton to the breeze; the fields are nude, the groves unfrocked; bare are the shivering limbs of shameless trees—what wonder that the corn is shocked?—*Puck.*

It is claimed that the yield of clover seed for 1888, is the smallest for twenty years, and the surplus outside of seed requirements will come from the states of Michigan, Ohio and Indiana.—*Daily Trade Bulletin.*

The failure of the principal bank of Osceola, Iowa, and the State Bank at Lake Crystal, Minn., were both caused by speculation in wheat. There was about \$50,000 deposited in the former, and over \$90,000 in the latter.

"You don't appear to be badly broken up over the loss of that girl," said Smith. "No," answered Gussie; "she gave me the sack the night before her father was caught on the short side of wheat and entirely cleaned out."

The report of the Commissioner of Internal Revenue, issued Nov. 25, shows that during the past fiscal year there were 1,029 grain distilleries operated in this country. They used 16,122,509 bushels of grain for the production of spirits, against 17,959,565 bushels for the preceding year. This is 4,836,273 bushels less than the average for the last ten years.

A Minnesota elevator owner says: "We have obtained from the State Inspection Department the receipts by grade from Sept. 1 up to date, of this year, and they show as follows: Total receipts of wheat from the country, 26,176 cars, of which 10 per cent. graded No. 1 hard, 25.5 per cent. No. 1 Northern, 29.4 per cent. No. 2 Northern, 11.4 per cent. No. 3, 12.5 per cent. "rejected," and 11.2 per cent. "no grade."

An enormous crop of broom corn has been raised in Douglas, Coles and Edgar counties, Illinois, this season, and as a consequence it is not bringing as good prices as was anticipated. Last year it averaged \$75 per ton, and three years ago it sold all the way from \$80 to \$150 per ton. This year the best quality brush only brings \$60 to \$65 per ton, and poorer qualities sell much below that. Douglas county alone will have 6,000 tons to sell.

"An 'honest' granger," says the *Graphic* of Atkinson, Neb., "hauled in a load of hay recently for a physician in payment of his bill. In driving over the prairie the wind blew so hard that 600 or 800 pounds of sod were 'blown' into the center of the load, and was not noticed by the farmer in unloading. His attention was called to it, however, and he promptly weighed it back with the wagon. The wind plays some curious capers in this country."

According to the Government crop report for November, Indiana's corn crop will not turn out as well as was anticipated. Many fields were damaged by the drouth, the grains being shriveled and loose upon the cob. The southern part of the state does not seem to have been so affected. The total yield for the state will be about the same as last year. The late sown wheat has been improved by the recent rains, and the prospects for a good crop are excellent.

The *Financial Times* of London, says that the old English pound was originally derived from the weight of 7,680 grains of wheat, all taken from the middle of the ear and dried. Then came the Troy pound. Henry VIII introduced the avoirdupois pound, containing 7,000 grains. At one time the pound weight of silver was really a pound of silver divided into twenty shillings. The word pound has gradually become separated from its original meaning, and is now used in several different senses.

THE EXCHANGES.

Montreal has several bucket shops running in full blast, with special wires.

The St. Louis Merchants' Exchange voted down the proposition to divide the surplus fund.

Tickets of membership to the New York Produce Exchange have been ruling quiet at \$1,375.

The Omaha Board of Trade will probably revive the open board feature in that organization's operations.

The Minneapolis Board of Trade has at last taken down the bars, and concluded to treat the newspaper men as men, and not as scavengers.

The Board of Directors of the Cincinnati Chamber of Commerce have fixed upon Jan. 24 as the date of formally dedicating their splendid new exchange building.

The directors of the St. Louis Merchants' Exchange have been waging war against the practice of smoking during trading hours. One recalcitrant member got out an injunction to prevent the directors from disciplining him for smoking.

Two prominent names are mentioned in connection with the presidency of the Chicago Board of Trade. C. L. Hutchinson, the present executive, is a general favorite, and W. S. Seaverns, first vice-president, is also mentioned in connection with the honor.

Says the New York Produce Exchange Reporter: "Gratuity funds are not wanted. The members of the Consolidated Exchange are dissatisfied with their system, and are endeavoring to change the rules. So it is wherever a gratuity system prevails. Some way should be found to abolish it."

The Board of Trade of this city has appointed a committee to confer with the railroads, and if possible to have the rule assessing demurrage charges at \$2 on each car of grain, abolished. The Board does not object to the amount charged, but it is claimed that the time allowed for unloading is not sufficient.

The secretary of the Milwaukee Chamber of Commerce finds fault with the shipping statistics posted by the Board of Trade of this city, and charges that a number of cargoes of corn shipped from this port lately have been reported as wheat and included in the visible supply. He claims that four boats were loaded with corn, instead of wheat as reported, amounting in all to 221,000 bushels.

At a recent meeting of the directors of the Chicago Board of Trade the assessment for annual dues for the coming year was fixed at \$70. A surplus in the treasury of \$60,000 was announced. It was stated that \$50,000 worth of their bonds had been purchased and would be canceled. A committee was appointed to arrange to have the names of all candidates at the annual election printed upon a single ticket. It was thought this plan would avoid the confusion which arises each year from the number of tickets in the field.

In reference to retiring the membership tickets of deceased members of the St. Louis Merchants' Exchange, the *Merchant Miller and Manufacturer* of this city says: "A proposition has been formulated, and will be voted upon to forever retire all such certificates. This, we claim, should have been done the past seven years, as during that time there has been an average of fifty deaths a year. Had action been taken upon the proposition then there would now be no floating certificates—certainly not to be purchasable at a less figure than participation value—say \$150. We predict that the proposition now to retire forever all such memberships, will be carried through by an almost unanimous vote."

The Chicago Board of Trade proposes to amend one of its rules in regard to trading, and make it fuller and plainer, so that there can be no misunderstandings as to its meaning. The rule as amended will read as follows: "No trade or contract for the future delivery of grain or provisions shall be made, or offered to be made, by any member or members of the association in the exchange room of the Board or in any of the public streets, courts or passages in the immediate vicinity thereof, or in any hall or exchange, hall or corridor in any building located or fronting on any such streets, courts or passages on any business day—except during the hours that trading is made regular by the provisions of the rules."

Egypt surely produces something besides the so-called antiques and "mummy" wheat, for during the last year there was exported from the country products valued at \$55,000,000. The area under cultivation was 5,953,754 acres, but the crops covered over 7,361,236 acres. Owing to the peculiarity of the seasons, more than one crop can be produced per year. There are three crop-producing seasons in that country namely, summer, winter and autumn, or season of Nile inundation. The soil of lower Egypt that is flooded by the Nile produces four crops in three years, while in upper Egypt only seven crops are

produced in six years. Corn is cultivated mostly in the upper region. Over 1,489,000 acres are used in the cultivation of wheat, and more than 2,436,000 acres of cotton are produced. The rest of the cultivable soil is devoted mostly to the cultivation of fruits and beans.

A New York exchange of Nov. 24 says, that "during the past week six members of the Produce Exchange have died, namely, S. Oscar Ryder, J. H. Reed, H. L. Parsons, Nathan Price, Charles Krieger, and N. S. Swezey." With these six, the number of deaths since April 1 has been 32. Every member is taxed \$3 for each death, much to the dissatisfaction of the younger members.

A Chicago Board of Trade man, who is a reader of the London *Economist*, says that journal shows that during October England imported five times as much wheat from Russia as she did during that month last year. He claims that the increase in the amount of Indian wheat imported was about the same, while the receipts of American wheat at Liverpool for six days was only 8,000 bushels out of a total of 704,000 bushels. He says that with wheat piling up at Odessa and other points, and foreign prices below ours, he fails to find any encouragement for the bulls.

Press Comment.

BRITISH CANALS.

Canal schemes are the order of the future, but curiously enough very few of the existing waterways in the United Kingdom pay expenses. According to a Government paper just issued the Caledonian Canal has gone very much from bad to worse. In previous years income and outgo have roughly balanced, but for the official year ending April 30 last, the deficiency is 3,759l. The canal, in a word, is too contemptible for modern requirements, and tinkering with it, as proposed, will do no good.—*London Financial Times*.

ST. LOUIS' MISTAKE.

The St. Louis Merchants' Exchange stand in their own light in not heralding their market throughout the length and breadth of the land, no matter what the cost may be. It would only be a question of time until the quotations would be absolutely required, when terms could be dictated. It appears that a revival of the old fight is to be reinaugurated upon the "Reform Platform." Many members of the Exchange claim the expense account is entirely too large. The item of salaries very much too large. Be this as it may, can as good service be obtained at less?—*Merchant, Miller and Manufacturer*.

THE GREAT CORN CROP.

The present year's corn crop is the largest ever grown, but it is not due to increased area, for there was less ground planted to corn than in 1886. Improved farming, the desire to get larger crops per acre, has made the most of this difference; and the increase in production is not all shown in the crop reports, for the amount of corn that was damaged by bad weather and not counted was greater this year than ever before. The crop in Iowa this year averaged 37 bushels per acre, which was more than New England was credited with at the taking of the last census, with all our high manuring and tedious hand hoeing.—*Stockman and Farmer*.

MR. DODGE AND HIS REPORTS.

The fact is that the Government crop reports have afforded evidence of the integrity and well-directed energy of the compilers, and have been all that could be expected from limited facilities and an imperfect system. But the accuracy and general acceptance of these estimates is so important that the criticism of their imperfections and the desire for every practicable improvement is not confined to the "unscrupulous speculators," whom the Statistician appears to regard as his only critics. The Government crop estimates have not been so fully and uniformly vindicated by experience as to insure unquestioning acceptance, and as long as there is any uncertainty as to their reliability the commercial world will favor the adoption of improved methods, and criticisms will continue to be made, many of which will be unbiased and in no selfish interest or carping spirit.—*N. Y. Commercial Bulletin*.

FREEZING OF CORN.

Indian corn is the most succulent of all the grains, and the fact that it is late in ripening makes it especially liable to injury by frost. Corn leaves are hurt by even light frosts if the stalks are not previously cut. Just as soon as connection with the root is severed the foliage dies out rapidly, or rather much of it is concentrated in the ear and husk to ripen and mature the grain. Experiments made with corn stripped from the stalk after it has hardened show some gain in weight of that cut up at the same time and left on the stalks in the usual way. Probably this passing of sap from the stalk to the grain does not continue long after both are severed from the root. It is therefore safe to husk corn without fear of loss in a few days after cutting. The parting of the husks is the usual sign waited for; but this is rather to facilitate husking than because this is needed to have the corn get full development. If corn ripens late it is safer to go through it even before it is ready to cut, and strip off enough of the best and earliest ears for seed, leaving the husks on.

Hang these ears in a warm place and they will dry out before severe weather comes, so that freezing the germ will be impossible. Seed corn dried by fire heat makes unusually vigorous plants, and is worth this trouble even when crib-dried corn will grow.—*Western Farm Journal*.

DEMAND FOR GRAIN FROM AUSTRALIA.

The partial crop failure in Australia this season is bringing orders to this coast for grain and flour, which are not often received from that section on an extensive scale. Oats to the extent of a thousand tons or more it is understood are about to be forwarded to Sydney. This will afford needed relief to the local oat market, which is at present more heavily stocked than is warranted by simply the home demand. Recent exports of flour from this port to New South Wales aggregate 4,200 barrels. Heavier shipments of flour and considerable wheat will go forward from here to the colonies during the next few months, likely to be followed by exports of more or less magnitude until the Australian harvest season of 1889-'90, fully a year hence.—*San Francisco Grocer*.

FIXING PRICES.

It is frequently asserted that supply and demand regulate the price of breadstuffs. This is only partially true. Take wheat, for instance. One week it advances five cents per bushel and declines as much or more the next without any apparent cause outside of speculation. There has been no addition or reduction in the supply, neither has the demand for legitimate purposes shown any material change. Speculation fixed the daily price, and has often done so for weeks if not months. The majority of speculative operators appear to study the factors influencing the present situation, such as public sentiment, manipulation, cliques, etc., more than they do the probable supply and demand. On the whole, these operators seem to meet with quite as much success as those who operate otherwise.—*New York Evening Post*.

A BEAR'S GROWL.

That wheat is too high in the Northwest for any other purpose than speculation is too plain a proposition to discuss. There is, apparently, no bread eating people on earth, outside of the Mississippi valley, paying for flour a price equivalent to the relative cost of wheat right here where it should be the cheapest. That is not because wheat is now scarce, but because it is told that before another harvest wheat will be scarce. If the mills could get buying orders for flour they would probably grind up the stock of wheat before another would be raised and cured. As it is, the miller here has paid so much for his wheat, and continues to pay so much for it that he cannot make flour to compete with other millers anywhere. If the wheat here should be held so much above the common level through the year is it not apparent that the mills will be able to run, excepting irregularly, in which case the wheat may last longer than the carriers of it may desire?—*Minneapolis Market Record*.

REPORTING THE VOLUME OF CROPS.

Mr. Dodge knows that there is no such thing as accuracy or completeness in reporting the volume of leading crops. He does not even accept the returns of his "trained correspondents" without applying his own processes of revision and modification, before submitting the results of consolidating the information obtained. Thus Mr. Dodge injects more or less of his own personal conviction and estimate into the reports of his office concerning crops. This may be fully justified by observation of the "law of averages." With all such effort, and the best work which has been attained in this line, the result is but an approximation to truth as to actual production, and valuable more in the way of general comparison with previous results similarly obtained than for exactness of volume. The intelligent public understands this. But it is the inconsistency which has so frequently come to light in Mr. Dodge's work, and which he cannot set aside nor explain away, which unsettles confidence and leads to a sense of distrust.—*Cincinnati Price Current*.

WHITE VS. BLACK OATS.

It may interest some of your readers, writes a correspondent of the *Farmers' Gazette*, to know the result of an experiment recently made with a view of ascertaining the relative proportions of shell and meal contained in a ton of potato oats and in one of black oats (Hallett's). Both samples were grown upon a medium loam, after potatoes or turnips, and were above the average in quality. Taking a small quantity, I first dried it thoroughly, and then with an apothecary's scales weighed an ounce of each. Each ounce was then carefully shelled by hand (a rather laborious task) and the shell and meal produced were accurately weighed and the results reduced to tons:

	Shell.	Meal.
	cwt. st. lb.	cwt. st. lb.
White oats contained.....	4 3 0	15 5 0
Black oats contained.....	6 0 4	13 7 10

My object being to ascertain the relative value for feeding purposes, I will be glad to learn whether the meal produced from the two samples would bear the same value if analyzed.

Sixty vessels loaded with grain, en route from Russia to European markets, are ice bound in the Sea of Azov, and will probably be detained there until spring.

THE LAW.

Agricultural Liens—Crop—Mortgage.

The Supreme Court of Mississippi held, in the case of *McCown vs. Mayer*, that any owner of land can mortgage a crop before the seed is planted. This is a point that had been questioned since the repeal of the eleventh section of the Agricultural Lien Law.

A Point in Bucket Shopping.

In the case of *Wm. H. Dunick vs. George M. Parsons*, in which the plaintiff sought to recover about \$2,000 which he lost by betting on grain and provisions in a bucket shop run in a building owned by Parsons, the Supreme Court of Ohio affirmed the decision of the lower court, sustaining a demurrer to the petition, thereby establishing the point of law that property owners are not liable for money lost in gambling on futures on their premises leased to bucket shops.

The Harper Deal.

Another suit growing out of the Harper wheat deal of last year has been decided by the United States Circuit Court at Cincinnati, Ohio. A number of drafts sent by Harper to be cashed at the American Exchange National Bank of Chicago were cashed by that bank, but when they were presented to the banks on which they were drawn payment was refused. The American Exchange Bank presented its claim to the receiver of the Fidelity Bank, and on his refusal to pay brought suit against him. The court decided in favor of the claim of the American Exchange Bank, holding that the bank had not exceeded its powers, but had become an innocent purchaser of the paper.

Option.

In the case of *Osgood vs. Bander* the plaintiff brought action in Iowa to recover damages for breach of contract made in Illinois. The contract was for the purchase of 150 cars of coal at a fixed price, to be delivered within certain dates, with the privilege of ordering an additional 250 cars on the same terms. The Iowa Supreme Court held that the contract was separable, since consisting of two parts—one a contract to purchase, and one a contract for the privilege of purchasing; and that as to the contract for the privilege of purchasing, it was a contract for an option to buy at a future time, and therefore void, under the Illinois statute, which provides that to have or give an option to buy or sell any grain or other commodity at a future time shall be void.

FROSTED MANITOBA BARLEY.

A brewing firm of this city purchased a lot of Manitoba barley, a short time since, which had a very attractive appearance, both as regards body and color, and great expectations were formed of its malting qualities. It cost about 72 cents per bushel delivered here, and there was certainly nothing about it to indicate that John Barley-corn's sprouting propensities had been destroyed by Jack Frost. The splendid looking cereal was accordingly put in the cistern, steeped the usual time, and left on the couch to show the first signs of germination; but, alas! it would not sprout. It was useless therefore to continue the process of malting, the stimulating properties of the barley having been killed up in Manitoba, and it was not worth a cent for "barley brae." This, however, is not the characteristic of all Manitoba barley, by any means, although it is feared that too much of it has been frosted, and too great caution cannot be taken in buying barley from certain sections in Manitoba this season.—*Montreal Trade Bulletin*.

The Hungarian Roller Mills of Bloomington, Ill., are building an elevator of 30,000 bushels' capacity.

The grain dealers of Battle Creek, Mich., recently caused the arrest of Charles Smith, a boy claiming to be 14 years old, for selling suspicious looking wheat, and in default of bail he was taken to jail. For some days previous to the arrest, wheat of such varying grades in each load had been marketed at that place that the buyers thought something was wrong and caused Smith's arrest. He had disposed of about \$250 worth of wheat, but claimed to be ignorant of where the wheat came from.

TO POULTRY RAISERS.

The Complete Poultry Manual is a neat little work which is well worth reading by those interested in poultry, or by boys or girls who want to turn an honest penny. The price is only 25 cents. Sent postpaid on receipt of price. Address

MITCHELL BROS. CO.,
184 Dearborn Street, Chicago, Ill.

TO THE DEAF:—A person cured of Deafness and noises in the head of 23 years' standing by a simple remedy, will send a description of it FREE to any person who applies to
NICHOLSON, 177 MACDOUGALL ST., NEW YORK.

WANTED.

A position in a grain elevator or merchant flour mill. Have had sixteen years' experience in buying grain, selling flour and bookkeeping in merchant mill, and one year as grain broker in Eastern markets. Good references. Can come at any time. Address

J. B. I., care AMERICAN ELEVATOR AND GRAIN TRADE, Chicago, Ill.

WANTED.

A partner who will devote his time to the business, with some means, to rebuild a water power mill in Toledo, on the site of the "Armada Mills," lately burned. It is the best site in the city, and the best city in America for a flouring mill to grind either winter or hard spring wheat. Correspondence solicited.

F. N. QUALE, Toledo, Ohio.

For Sale.

FOR SALE.

One Kurth's Double Cylinder Cockle Mill. New. Price at Montevideo \$150. Address

J. A. CASE, Montevideo, Minn.

FOR SALE.

Two Cutler Steam Grain Driers (largest size), very little used and in good condition. Suitable for drying either grain or meal. Address

IOWA ELEVATOR CO., Peoria, Ill.

COMMISSION CARDS.

HOLLISTER, CRANE & CO., FLOUR MERCHANTS,

AND DIRECT SHIPPERS OF

FLOUR, GRAIN AND FEED,

FROM THE WEST.

Office, 90 Broad Street,
NEW YORK.

E. C. RICE. F. QUINBY. E. BAILEY.

RICE, QUINBY & CO., FLOUR AND GRAIN

Commission Merchants,

113 and 114 Produce Exchange, NEW YORK.

Agents for the following Leading Brands:

"WASHBURN'S BEST," "FIFTH AVENUE," "BON TON,"
"GRADUAL REDUCTION," "BEACON LIGHT," "GROSVENOR."

WILLIAM MURRAY, COMMISSION MERCHANT,

Flour, Grain and Provisions,

406 Produce Exchange,
NEW YORK.

MEMBER OF

New York Produce Exchange—AND—Chicago Board of Trade.

CORRESPONDENCE SOLICITED.

WESTERN GRAIN IN CAR LOTS.

Choice Yellow and White Corn, Mixed and White Oats, and good Red Winter Milling Wheat for sale in car lots to suit purchasers. Grain loaded at my country elevators and shipped directly through to points in the East and Southeast.

ELEVATORS AT

ILLIOPOLIS, ILLINOIS. SANGER, ILLINOIS.
LANESVILLE, " CURRAN, "
BUFFALO, " BATES, "
DAWSON, " LOAMI, "
CANTRALL, " LOCKE, "

Address all correspondence to main office in First National Bank building, Springfield, Ill.

E. R. A. ULRICH & SON.

COMMISSION CARDS.

A. J. SAWYER.

JOHN MACLEOD.

A. J. SAWYER & CO.,

Duluth and Minneapolis, Minn.,

SHIPPING

AND

Grain Commission.

CLEMENT & WOODWORTH,

WHOLESALE DEALERS

Grain and Mill Feed,

416 Nicollet Avenue,

MINNEAPOLIS, MINN.

CORRESPONDENCE SOLICITED.

A. B. TAYLOR & CO.

RECEIVERS AND SHIPPERS OF

GRAIN AND MILL FEED,

Room 7, Chamber of Commerce,

MINNEAPOLIS, MINN.

Careful attention given to orders for HARD SPRING WHEAT, for Milling.

J. N. HOLLOWAY & CO., Limited,

SHIPPERS OF

Grain and Mill Feed

Room 14, Commercial Exchange,

PHILADELPHIA, PA.

MARTIN D. STEVERS. Established 1864. M. D. F. STEVERS.

MARTIN D. STEVERS & CO.,

Commission Merchants,

218 La Salle Street, Chicago.

Grain and Provisions for Future Delivery Bought and Sold on Margins. Liberal Advances on Consignments. We make a Specialty of Selling by Sample.

Barley, Wheat, Corn, Oats, Rye, Flax and Timothy Seed. Correspondence and Consignments Solicited.

J. M. GIRVIN.

J. H. GIRVIN

J. M. GIRVIN & SON, GENERAL

Commission Merchants,

FOR SALE OF
Flour, Grain, Hay, Seeds, Mill Feed, etc.,

No. 220 Spear's Wharf, - - BALTIMORE, MD.
Liberal Advances made on Consignments.

REFERENCES:—J. W. Guest, Cashier Citizens National Bank.
W. H. Norris, Cashier Western National Bank.

E. W. BAILEY & CO., Commission Merchants,

Grain, Seeds and Provisions,

CASH OR FUTURES,

72 BOARD OF TRADE,
CHICAGO, ILL.

W. H. IRWIN, Grain Commission,

Room 124 Produce Exchange,
NEW YORK.

COMMISSION CARDS.

REDMOND CLEARY COMMISSION CO.,
CAPITAL \$200,000.

OFFICERS: REDMOND CLEARY, PRESIDENT.
DANIEL P. BYRNE, VICE-PRESIDENT.
THATCHER G. CONANT, SECRETARY.

GRAIN, HAY and PROVISIONS,

Room 317 Chamber of Commerce, ST. LOUIS, MO.

WE ARE REPRESENTED

In Western Iowa by J. W. CHACE, Red Oak, Iowa.
In Nebraska by W. H. AXTER at Lincoln, Neb.; and
In Missouri and Kansas by C. W. GREENE, Kansas City.

GENERAL SOLICITORS:

E. L. Waggoner, B. Inman, and E. C. Miller.

ESTABLISHED 1875.

P. B. & C. G. MILES,
GRAIN

Commission Merchants,

214 HARRISON ST.,

PEORIA, ILL.

Best market on earth for "off grade" grain. Correspondence invited.

REFERENCES: Commercial National Bank, Peoria, Ill.
Merchants' National Bank, " "
And the Trade generally.

J. H. VANNERSON. ESTABLISHED IN 1870. W. H. VANNERSON.

VANNERSON & CO.,

Commission Merchants and Brokers

GRAIN, HAY, FLOUR AND PROVISIONS.

Grain Elevator and Warehouse.

Direct Communication with all Railroads Entering the City.

AUGUSTA, - GA.

S. D. FOSS. E. B. STRONG. REYNOLDS.

FOSS, STRONG & CO.,

Commission Merchants

The Rookery Building,

CHICAGO

W. P. CHASE,

Commission Merchants

IN

FLOUR, GRAIN AND FEED,

Office, No. 3 Moulton St., **PORTLAND, MAINE.**

COMMISSION CARDS.

J. J. BLACKMAN. J. S. BLACKMAN. G. W. GARDINER.

J. J. BLACKMAN & CO.,

Commission Merchants,

WHEAT, CORN, OATS, AND SCREENINGS,

37 Water Street, - - - **NEW YORK.**

ESTABLISHED 1871.

J. M. BERRY,

PROPRIETOR,

EXCELSIOR ROLLER FLOUR and MEAL MILLS.

WHOLESALE COMMISSION,

GRAIN, FLOUR AND PROVISIONS,

Correspondence and Consignments Solicited.
Liberal Advances on Shipments.

AUGUSTA, - GEORGIA

WARREN R. BUCKLEY. THOS. J. PURSLEY.

BUCKLEY, PURSLEY & CO.,

Commission Merchants

PEORIA, ILL.

REFERENCES: First National Bank of Peoria, Ill. } **GRAIN, HAY, SEEDS**
Commercial Nat'l Bank of Peoria, Ill. }
And Mercantile Agencies.

Special attention given to Selling Grain by Sample.

THE SHERMAN BROS. CO., Limited,

58 and 59 Board of Trade,

Buffalo, N. Y.,

TRACK BUYERS OF WESTERN GRAIN,

SHIPPERS TO THE WEST OF

New York State Buckwheat

—AND—

Buckwheat Flour.

CORRESPONDENCE SOLICITED.

J. W. BOOTH & SONS,

ESTABLISHED 1848.

GRAIN COMMISSION MERCHANTS,

OFFICE, ROOM No. 6 MITCHELL BUILDING,

210 & 212 N. Third St., - **ST. LOUIS.**

G. W. VAN DUSEN & CO.,
MINNEAPOLIS, MINN.

THE VAN DUSEN-ELIOT CO.,
DULUTH, MINN.

Handle Grain, Hay, Feed and
Seeds on Commission.

COMMISSION CARDS.

J. A. DEWEY,

Successor to SMITH & DEWEY,

Grain Commission Merchants

Room 4, Williamson Block,

DULUTH, - - - MINNESOTA.

Orders for Cargoes Promptly Filled.

NORMAN & STONE,

Commission Merchants,

GRAIN, FLOUR, BROOM CORN.

BALTIMORE, - - MARYLAND.

REFERENCE:—Merchants National Bank,

C. H. SIMPSON.

L. L. BASS

SIMPSON, BASS & CO.,

COMMISSION.

Nos. 1205 & 1207 Cary St., **RICHMOND, VA.**

SPECIALTIES:

GRAIN, FLOUR and HAY.

F. H. PEAVEY & CO.,

*** GRAIN ***

Rooms 61, 62 and 63 Chamber of Commerce,

MINNEAPOLIS, MINN.

Large Receivers and Shippers of Grain and Flax Seed.

Robert McKnight & Sons,

Commission Merchants,

—AND DEALERS IN—

FLOUR, GRAIN AND FEED,

Nos. 2106 & 2108 Market St., **PHILADELPHIA.**

REFERENCES: Merchants' and Third National Banks,
PHILADELPHIA.

J. J. STANLEY & SONS,

COUNTRY PRODUCE

Commission Merchants,

BUTTER, EGGS AND BEANS A SPECIALTY,

LAWRENCE, - - - MASS.

REFERENCES:

Pacific National Bank, - **LAWRENCE, MASS**

HANCOCK & CO.,

Shipping and Commission Merchants,

PHILADELPHIA: 135 South Second St.

PEORIA, ILL.,

11 and 13 Chamber of Commerce.

NEW YORK,

432 Produce Exchange.

We are making a specialty of Milling Wheat, suitable for Pennsylvania, New Jersey and New York Milling Trade, and cordially invite correspondence or interviews with Millers and Eastern Dealers.

Western Consignments to our New York and Philadelphia Houses solicited. The same will be handled with care and promptness.

COMMISSION CARDS.

LEMAN BARTLETT.

O. Z. BARTLETT.

L. BARTLETT & SON,

Grain and Produce Commission Merchants

BARLEY a Specialty.

Room 23, Chamber of Commerce Bldg, Milwaukee, Wis.

Careful attention given to orders from Brewers, Malsters and Millers.

Established 1865.

Incorporated 1885.

SCHWARTZ BROS. COMMISSION CO.,

1601, 1603 & 1605 North Broadway,

ST. LOUIS, MO.

General Commission Merchants

GRAIN AND FLOUR.—BARLEY A SPECIALTY.

Liberal cash advances made on consignments.

COMMISSION CARDS.

CHAS. A. WEARE, President. JOHN L. FYFFE, Secretary.
PORTUS B. WEARE, Treasurer.

Established Quarter of 100 Years.

WEARE COMMISSION CO.,

GRAIN, SEED AND PROVISION

COMMISSION MERCHANTS,

193 South Water Street, - - - - - Chicago, Ill.

Represented by WOOD BROS. at Union Stock Yards.

C. W. BAIRD,

FRANK WEST.

BAIRD & WEST,**BROKERS,**Grain, Flour, Mill Feed and
General Merchandise,**112 Jefferson Avenue,**

MICHIGAN EXCHANGE BUILDING,

DETROIT, MICHIGAN.

COMMISSION CARDS.

ESTABLISHED 1865.

L. EVERINGHAM & Co.,

Commission Merchants,

200 & 202 ROYAL INSURANCE BUILDING,

Opposite Board of Trade.

CHICAGO.

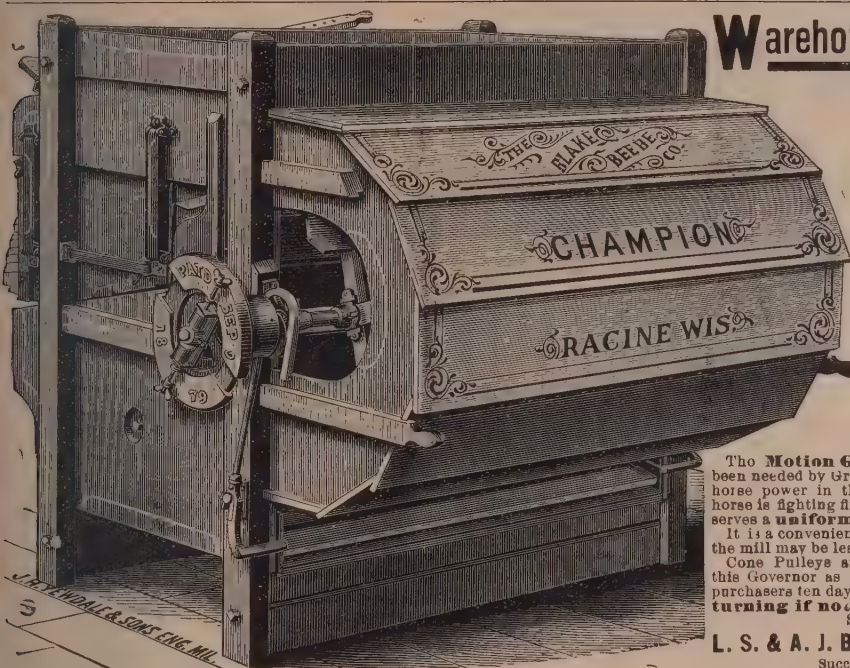
Consignments Solicited of Grain, Flax, Seeds. Selling
by Sample a Specialty. The Purchase and Sale of Grain and Provisions on
the Chicago Board of Trade, for Future Delivery, on Margins, a Specialty.
Special letters indicating the course of Markets and our reliable and
exhaustive Crop Reports sent free upon request.**EDWARD M. TAYLOR,**

(Of the late firm of CLEARY & TAYLOR)

Commission Merchant,

GRAIN AND HAY,

309 CHAMBER OF COMMERCE,

ST. LOUIS, MO.Consignments Solicited and Grain Bought and Sold for Future
Delivery on Margins.**Warehouse Fanning Mills.**

Cut of No. 6 Mill with Motion Governor.

—CAPACITY—

600 BUSHEL
PER HOUR.

WE MAKE

Farm Mills and
Seven Different Sizes

—FOR

**Warehouses
and Elevators**More of them in actual and satisfac-
tory use than any other kind.The Motion Governor is something that has long
been needed by Grain men, particularly by those who use
horse power in their elevators, for it matters not if the
horse is fighting flies, jumps or runs, this Governor pre-
serves a uniform and steady speed.
It is a convenience with steam power, as the speed of
the mill may be lessened or accelerated by it in a moment.
Cone Pulleys are unnecessary with it. We guarantee
this Governor as good as represented and we will allow
purchasers ten days to test it, with the privilege of re-
turning if not equal to the guarantee.
Send for Catalogue to**L. S. & A. J. BLAKE,** - Racine, Wis.,
Successors to The Blake-Beebe Co.**GEO. L. JARRETT,**

Manufacturer and Dealer

IN ALL KINDS OF

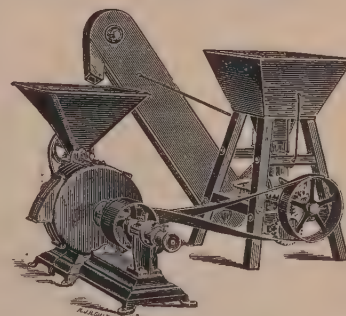
ELEVATOR**MACHINERY,**ENGINES AND BOILERS,
PULLEYS, SHAFTING, GEARS,
PIPE FITTINGS, BRASS GOODS, Etc.

OFFICE and STORE:

307, 309 & 311 E. First St.

WORKS:

112, 114 & 116 E. Walnut St.

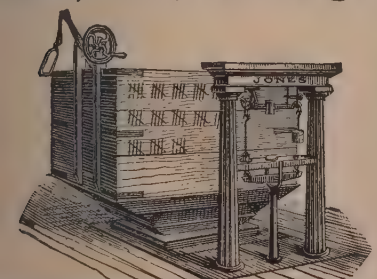
Des Moines, Ia.**WALDRON & SPROUT'S French Burr Mills**

Four sizes 12, 16, 20 and 30-inch.

Either with or without Ear Corn Crusher attached

THESE MILLS HAVE NO EQUAL.Write for discounts, and catalogue giving full de-
scription. Address, mentioning this paper.**WALDRON & SPROUT, Muncy, Pa.**
Manufacturers of French Burr Mills, Ear Corn
Crushers and Hay Tools.**SUBSCRIBE FOR THE****American Elevator and Grain Trade.****\$1.00 PER YEAR.**

ADDRESS:

MITCHELL BROS. CO., - CHICAGO.**Jones, He Pays the Freight****HOPPER SCALES.****RAILROAD Track SCALES.**Before purchasing, send for
Price List of our Stand-
ard Scales.—None better.—
Fully Warranted.—All sizes
made.

—ADDRESS—

Jones of Binghamton**Binghamton, N. Y.**

SECTION OF CONVEYOR.

**Roller and Detachable
CHAIN
BELTING**

DETACHABLE in every Link.

Especially Designed for

**Elevators,
Conveyors,
Drive Belts,
Etc., Etc.**

—For Handling—

GRAIN, SEEDS,
EAR CORN, MALT,
COTTON SEED, COAL,
STONE, CLAY,
PAPER PULP,
TAN BARK, BOXES,
BARRELS, ETC.Also manufacturers of the Gregory Grain, Seed and
Fruit Dryer; Meal and Flour Purifier.**Before Placing Orders**Send for Illustrated 1888 Cata-
logue and Prices.

ADDRESS

THE JEFFREY MFG. CO.,

123 East First Ave., COLUMBUS, O.

ROGERS & CO., Agents, 107 Liberty St., - NEW YORK

**THE LOTZ PATENT
GRAIN SHOVELING
MACHINE**

FOR UNLOADING CARS.

HOWARD IRON WORKS,

BUFFALO, N. Y.,

SOLE MANUFACTURERS for the UNITED STATES

Send for descriptive circular.

Kemp's Double Cam Hay Press given
away if it will not fill demands of my circulars.
JAMES KEMP, Kempton, Ill.**ROPER'S PRACTICAL HAND-BOOKS FOR ENGINEERS**

<i>Hand-Book of Land and Marine Engines</i>	Price, \$3 50
<i>Hand-Book of the Locomotive</i>	" 2 50
<i>Catechism of High-Pressure Steam Engines</i>	" 2 00
<i>Use and Abuse of the Steam Boiler</i>	" 2 00
<i>Engineer's Handy-Book</i>	" 3 50
<i>Questions and Answers for Engineers</i>	" 3 00
<i>Care and Management of Steam Boilers</i>	" 2 00
<i>Instructions and Suggestions for Engineers</i>	" 2 00
<i>The Young Engineer's Own Book</i>	" 3 00

These books embrace all branches of Steam Engineering—Stationary, Locomotive, Fire and
Marine. Any engineer who wishes to be well informed in all the duties of his calling, should provide
himself with a full set. They are the only books of the kind ever published in this country, and they
are so plain that any engineer or fireman that can read can easily understand them. Address**MITCHELL BROS. CO., 184 Dearborn St., CHICAGO.**

THE PRINZ PATENT IMPROVED GRADER AND SEPARATOR

Special Attention is Called of Elevator and Grain Men.

MILWAUKEE, WIS., Nov. 28, 1887.

MESSRS. FAUSTIN PRINZ & CO., Milwaukee.

GENTLEMEN:—Having made a thorough test of your "Prinz Barley Grader and Separator," we take pleasure in stating to you and to whom it may concern, that we consider it *undoubtedly the best machine in the market* for grading and cleaning barley. It works without flaw and needs but little power. As a further testimonial we hereby request you to furnish us without delay with another machine. We shall take out our old apparatus to make room for it. Yours truly,

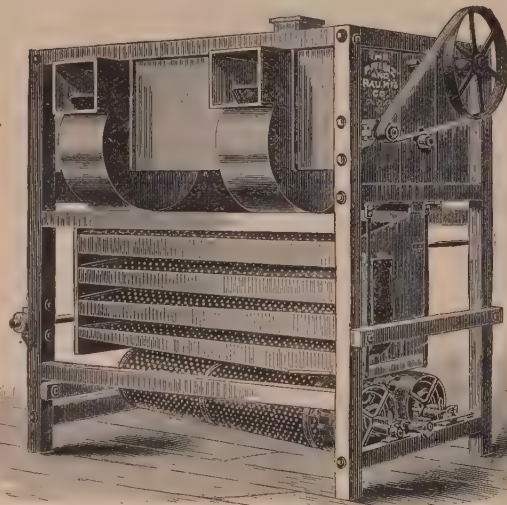
ASMUTH MALT & GRAIN CO.,
BRUNO E. FINK, Sec'y.

WAUKESHA, WIS., Sept. 28, 1888.

FAUSTIN PRINZ & CO., Milwaukee, Wis.

GENTS:—The machine is working tip top; we like it better every day, both for barley and wheat. The feed is even and the entire machine handy. We *now* feel it our *duty* to recommend it. It is a success far beyond our experience with others. Yours truly,

T. HAYNES & SON.



MILWAUKEE, WIS., Oct. 15, 1887.

MESSRS. FAUSTIN PRINZ & CO., Milwaukee.

GENTS:—We take pleasure in stating that the "Prinz Grader and Separator," which you put up in our Malt-house about six months ago, has run continuously and given entire satisfaction. We find it working in every particular as represented by you, and can well recommend it for cleaning and separating barley, etc., etc. We also mention one of its principal features, viz.: the prompt removal of all broken kernels, and which, in such perfectness, we have not yet noticed on other cleaners.

We are always ready to exhibit the machine to parties looking for a good Grader and Separator, and we congratulate you on the improvements made by you, which give it a superiority over all others that we have seen. Your respectfully,

WM. GERLACH & CO.

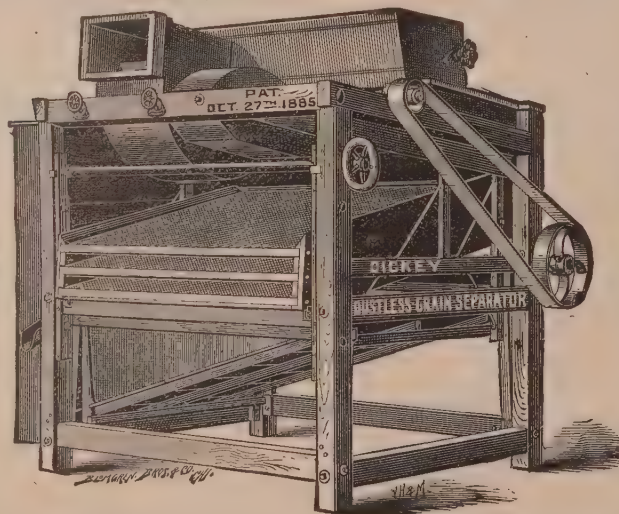
These Machines are superior to any two other cleaning machines in the market in regard to capacity as well as durability. Circulars, prices and further particulars will be furnished by

THE PRINZ & RAU MANUFACTURING CO.

659 to 663 East Water Street, MILWAUKEE, WIS.

DICKEY DUSTLESS GRAIN AND FLAX SEPARATOR

This Separator is our latest and most perfect, and guaranteed to be the superior of any now on the market. This machine, as can be seen by the cut, is not a warehouse fanning mill with one patent attachment, but is a Dustless Separator, made for the express purpose of thoroughly cleaning and separating all kinds of grain in large quantities; its construction is such that the working machinery and weight is all within the parts or anchors.



WE CLAIM FOR IT SUPERIORITY

over everything of the kind made, in simpleness, durability, saving of power, capacity and cost of construction. Its height will accommodate any number of spouts from different points, without moving machine. They have a capacity from 700 to 1,500 bushels per hour. We also control exclusively the manufacture of the celebrated Dickey Giant, End and Side Shake Warehouse Mills, that have attained such a world wide reputation. Sent on approval to any reliable party. For full particulars address

A. P. DICKEY MANUFACTURING CO. SUCCESSORS TO DICKEY & PEASE, RACINE, WISCONSIN.

GARRY IRON ROOFING COMPANY.

The Largest Manufacturers of IRON ROOFING in the World.

Manufacturers of all kinds of

Iron Roofing

Crimped and Corrugated Siding, Iron Tile or Shingle, Iron Frames for Roofs and Buildings, Fire-proof Doors, Shutters, etc., etc.



IRON ORE PAINT and Cement,

152 to 158 MERWIN ST.,

Cleveland,

Send for Circular and Price List No. 73.

M. F. SEELEY.

J. S. SEELEY.

C. R. DELAMATY.

THE SEELEY ELEVATOR.

SEELEY, SON & CO.

FREMONT, NEB..

ELEVATOR BUILDERS

THE SEELEY ELEVATOR

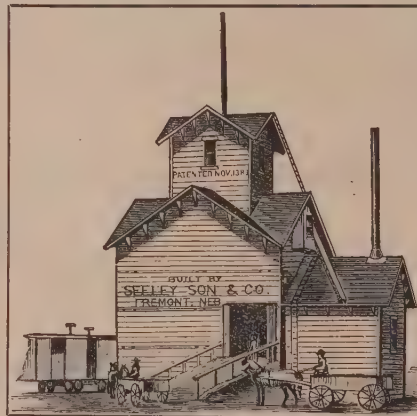
Stands at the head for Convenience and Economy of Operation.

Plans, Specifications AND ESTIMATES.

Also furnish all kinds of Machinery, Engines, Cleaners, Corn Shellers, Belts and Buckets, etc., etc.

We sell dumps licensed under the patents controlled by J. M. Harper. We build Elevators in all parts of the United States and Canada.

With our experience, we can save you on these items more than cost of Plans. Correspond with us and save costly mistakes.



The Triangle Frame Single AND Double Geared Horse Powers

Strongest and Best

Manufactured and for Sale by

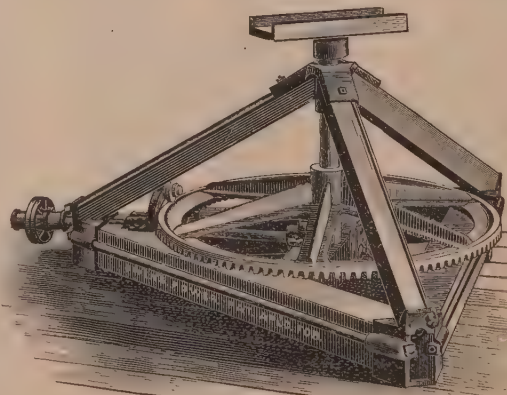
J. L. OWENS

& CO.,

DARTMOUTH and SUPERIOR

AVES. S. E.,

MINNEAPOLIS, MINN.



Send for Circular and Prices.

BARNARD & LEAS MFG. CO.,

Moline, Illinois.

ELEVATOR MACHINERY.

COMPLETE ELEVATOR OUTFITS.

VICTOR :: CORN :: SHELLER.

BARNARD'S

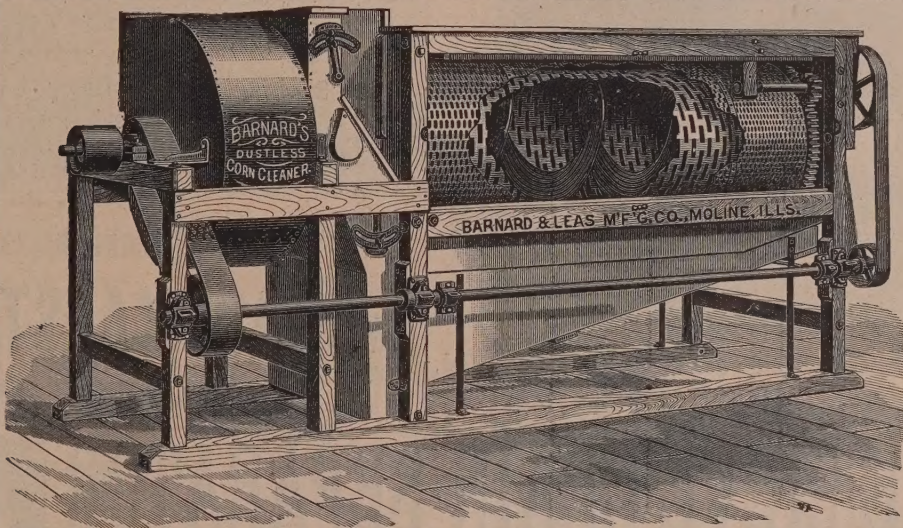
Dustless Three Sieve

ELEVATOR

—AND—

WAREHOUSE

SEPARATOR



BARNARD'S

New Horizontal

SMUTTER

—AND—

SCOURER.

Especially adapted
for Warehouse
Purposes.

—BARNARD'S—

Improved Double Screen Dustless Corn Cleaner with Shaker.

FULL LINE SPROCKET WHEEL PATTERNS.

Shafting, Pulleys, Hangers, Boxes, Link Belting, Elevator Buckets, Iron Elevator
Boots, Dump Irons, Belting.

ELEVATOR SUPPLIES OF EVERY DESCRIPTION.

Messrs. BARNARD & LEAS MFG. CO.

BOWLING GREEN, OHIO, Nov. 16, 1888.

GENTLEMEN—Enclosed find draft for \$130.00, payment invoice Sheller. Think we have the best Sheller in the market. We have two of your Shellers in use. Would put in the third one if it were not so late in the season. Think we could save corn enough to soon pay for another one. Anyone making inquiry about Shellers, REFER THEM TO ROYER & COON.

Respectfully yours,

ROYER & COON.

SEND FOR PRICES AND DISCOUNTS.

BARNARD & LEAS MFG. CO., MOLINE, ILL.

J. F. PAYNE, Sales Agent for Indiana,

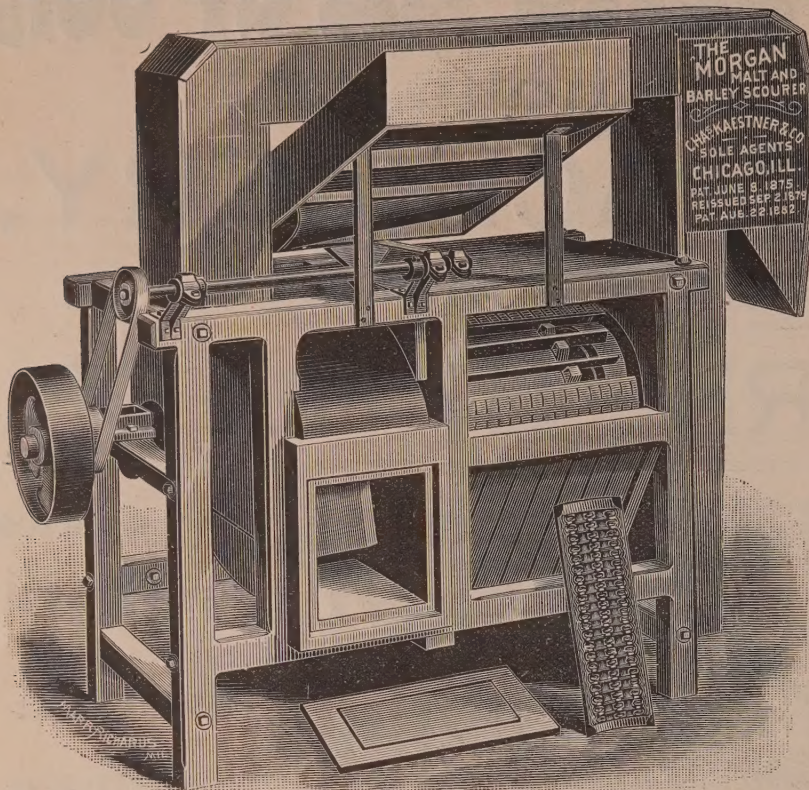
79 W. Washington St., INDIANAPOLIS, IND. 105 St. Clair St., - - - - - TOLEDO, OHIO.

M. M. SNIDER, Sales Agent,

W. E. GORTON, Agent,

1323 CAPITOL AVE., - DES MOINES, IOWA. 87 Water St., - - - - - PITTSBURGH, PA.

THE MORGAN OAT CLIPPER AND POLISHER.



Every machine sold under full guarantee to give entire satisfaction or money refunded.

WE GUARANTEE { **BEST WORK,**
LARGEST CAPACITY, and
LEAST POWER.

Write for Circular and References.

400 to 500 Bushels an Hour. 8 to 10 Horse Power.

The Kaestner Patent Portable Grist and Feed Mills

Four sizes. Capacity, 15 to 100 bushels an hour. Power, 4 to 15 Horse.

The Kaestner Patent Friction Clutch Pulley and Coupling

SUPERIOR TO ALL OTHERS.

Shafting, Pulleys, Hangers and Gearing, General Mill and Elevator Machinery and Supplies.
Engines: Slide Valve, Automatic and Corliss.
Steam and Air Pumps, Belting and Hose.

Office and Works, 303 to 311 So. Canal Street.

CHAS. KAESTNER & CO.,

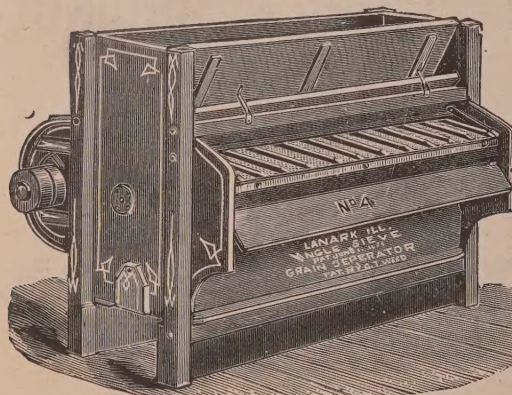
CHICAGO, ILL., U. S. A.

G. G. WICKSON & CO., Agents for Pacific Coast, San Francisco, Cal.
EMESTO FUCHS, Manager Exports, Villa Lerdo, Mexico.

THE ANGLE-SIEVE GRAIN-SEPARATOR

(D. T. Weed and H. A. Webber's Celebrated Patent.)

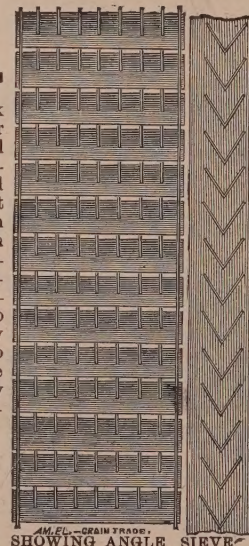
The CHAMPION of the WORLD.



Everybody is astonished to see the work it does. We challenge competition, for general cleaning purposes. We CAN and WILL separate oats and wheat raised together, the first time through the Separator, and make it fit for market, and not run any wheat over in the oats. No other Separator can help running wheat over, where the suction or blast is depended on to make the separation, which we claim is not the correct principle of separation. The peculiar construction of the sieve, and the motion of it, do the work. We can take oats out of barley just as well, though not quite so fast. No other Separator attempts to do this. We can also clean buckwheat, flax, rice or any other small seeds that any other separator will handle.

WRITE FOR CIRCULARS AND PRICES.
Address the Manufacturer,

D. T. WEED, { ONE OF THE PATENTEES, } Lanark, Carroll Co., Ill.



SHOWING ANGLE-SIEVE



A. B. FARQUHAR, York, Pa.

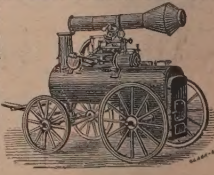
STEAM ENGINES OF ALL KINDS,
VERTICAL ENGINES, with or without Wheels.
Very convenient, economical and complete in every detail. Best and Cheapest Vertical in the World.
Saw and Grist Mills and Machinery generally.
SEND FOR ILLUSTRATED CATALOGUE.



Steam Engines.

AUTOMATIC AND PLAIN SLIDE VALVE, Stationary, Portable and Traction. Cheapest and best for all purposes. Simple, strong and durable. No Farquhar boiler ever exploded. Saw Mills, Threshing Machines and Agricultural Implements and machinery generally. Send for illustrated catalogue.

A. B. Farquhar, York, Pa.



Elevator and Mill Supplies

Leather, Cotton, Rubber

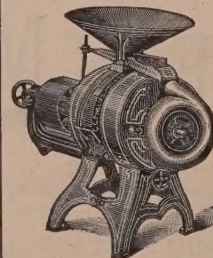
BELTING

Elevator Buckets, Bolts, Mill Irons, Etc.

Prices Close, and Quality the Best.

THE CASE MFG. CO., Columbus, O.

FRENCH BURR MILLS.



Please lay this aside for reference, and when you are ready to purchase a Mill or any Mill Machinery, send for our descriptive catalogue, describing the many kinds and sizes of the Mills we make, adapted to all kinds of work, viz.: all grains, bones, chemicals, paints, dye stuffs, foundry facings, etc. Remember our Mills are guaranteed to prove as represented. Send for circular and be convinced. They have no equal.

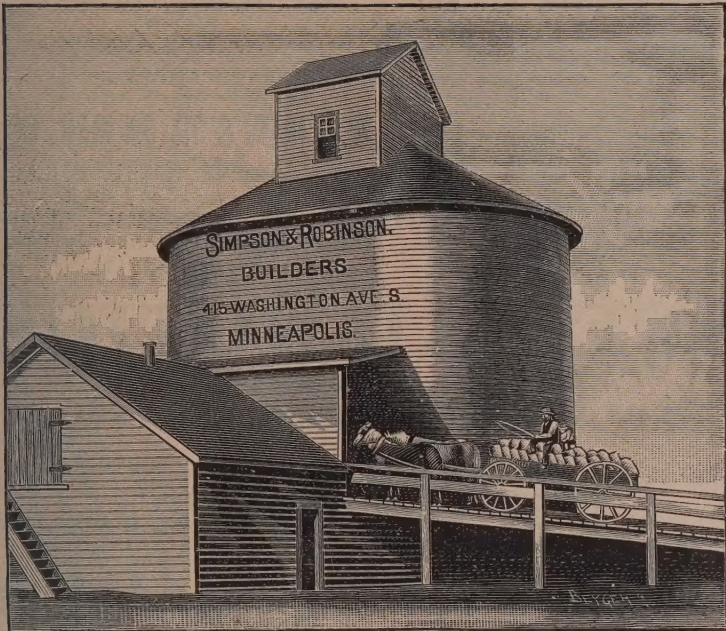
C. C. PHILLIPS, Philadelphia, Pa.

Office, 20 South Broad Street,



SIMPSON & ROBINSON,

CONTRACTORS AND BUILDERS OF

Grain Elevators and Warehouses.

Our "Circular End" Elevators cannot be excelled for compactness, strength and convenience. A large number have been built this season, and are universally admitted to be the best in use. To those who contemplate building, we will cheerfully submit full particulars and prices.

Room 28, over 413-415 Washington Ave., South, - - MINNEAPOLIS, MINN.

METCALF, MACDONALD & CO.

ARCHITECTS, ENGINEERS AND CONTRACTORS,

Builders of Grain Elevators,

Office, 125 & 127 Ontario St., CHICAGO, ILL.

REFER TO:

GEO. B. REEVE, Traffic Manager of the Chicago and Grand Trunk Railway.....CHICAGO, ILL.
W. P. HARVEY & CO.....

ROPER'S PRACTICAL HAND-BOOKS FOR ENGINEERS

<i>Hand-Book of Land and Marine Engines</i>	Price, \$3 50
<i>Hand-Book of the Locomotive</i>	" 2 50
<i>Catechism of High-Pressure Steam Engines</i>	" 2 00
<i>Use and Abuse of the Steam Boiler</i>	" 2 00
<i>Engineer's Handy-Book</i>	" 3 50
<i>Questions and Answers for Engineers</i>	" 3 00
<i>Care and Management of Steam Boilers</i>	" 2 00
<i>Instructions and Suggestions for Engineers</i>	" 2 00
<i>The Young Engineer's Own Book</i>	" 3 00

These books embrace all branches of Steam Engineering—Stationary, Locomotive, Fire and Marine. Any engineer who wishes to be well informed in all the duties of his calling, should provide himself with a full set. They are the only books of the kind ever published in this country, and they are so plain that any engineer or fireman can read and easily understand them. Address

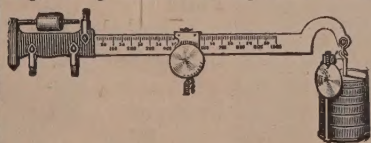
MITCHELL BROS. CO., 184 Dearborn St., CHICAGO.



P. S.—We issued a challenge of \$100.00 to operate our Victor Press against the Whitman Press, which was not accepted. Why not? See *American Grange Bulletin*, Cincinnati, O. Oct. 18, '88.



Apply for Terms and Unoccupied Territory. LACONDA MFG. CO. Springfield, Ohio, Terr'y West of Penna.

FISHER'S PATENT Registering and Recording Scale Beam.

The Most Important Invention of the Age to Grain and Coal Dealers, Brewers and Millers, or anyone using large Scales and where ABSOLUTE accuracy is desired.

It gives a printed ticket showing the EXACT weight in pounds, and if desired will show the exact number of bushels and pounds of ANY KIND of grain. The tickets can be taken singly or as many as may be desired. It is very simple in construction with nothing about it to get out of order, and will last as long as your scale. It can be attached to any make of scale already in use.

The ticket can be filed away for future reference, and is a better protection than the sworn statement of your weigh-master.

This invention is especially adapted for use on scales in terminal elevators, breweries, mills, coal docks and coal mines, or in fact for any one receiving or shipping material in car lots. For further information, prices, etc., write to **THE FLOUR CITY MFG. CO., Minneapolis, Minn.**

**Howe's Challenge Sample Envelope.**CHEAP, SIMPLE,
NEAT AND SECURE.EASILY OPENED,
Filled and Closed.IS ABSOLUTELY SECURE
WHEN CLOSED
FROM BECOMING OPENED
WHEN PASSING
THROUGH THE MAILS.

Unlike other Sample Envelopes, this has its Loop or Fastening A, secured to Envelope, and is in no way likely to become lost, broken or bent out of shape; but is always ready for use. It is the Cheapest and Most Complete Package for sending samples on the market.

NET PRICE LIST.—No. 0-1 oz.—For Rice, Seed, Spices, Etc., 50c per 100, \$4.00 per 1,000; No. 1-2 oz.—For Coffee, Grain, Flour, Photographs, Etc., 65c per 100, \$6.50 per 1,000; No. 2-4 oz.—For Malt, Flour, Grain, Hominy, Etc., 90c per 100, \$9.00 per 1,000; No. 3-6 oz.—For Flour, Grain, Malt, Cloth Samples, Etc., \$1.25 per 100, \$12.50 per 1,000; No. 4-8 oz.—For Grain, Malt, Cotton or Yarn Samples, \$1.65 per 100, \$16.50 per 1,000. **TERMS NET CASH.** On orders of less than \$5, please send Postal Note, 1 or 2 cent stamps with order. Bills of \$5 or more, payable in Postal or Express Money Order, or New York, or Chicago Exchange. We can pay no Discounts or Exchanges.

On orders for 1,000 or more we will print cards on Envelope, FREE, if copy and request is inclosed with order. On lots of less than 1,000, 75 cents extra charged if printing is desired. P. S.—Parties desiring envelopes sent by mail, must send postage with order at the rate of 12 cents for No. 0, 22 cents for No. 1, 35c for No. 2, 50c for No. 3, and 75c for No. 4, per 100 envelopes. Address:

N. E. CHURCH, Agent, - - 186 Dearborn St., CHICAGO.

**BOWSHER'S FEED GRINDING MILL.**

(Sold With or Without Elevator.)

FOR EAR CORN AND ALL KINDS SMALL GRAIN.

HAS SELF-FEEDER FOR EAR CORN.

Crushes and grinds Ear Corn and Small Grain, mixing the two in any proportion desired. A carefully built, strong and reliable machine. Two sizes, 15 to 50 bushels' capacity.

THE BEST FEED MILL OUT for all kinds of COUNTRY CUSTOM WORK.

N. P. BOWSHER, Sole Manufacturer, SOUTH BEND, IND

STILL ON TOP.

Perhaps the highest compliment that could be paid the "SALEM" Bucket is the fact that during the past few years

Its Shape Has Been So Closely Imitated



By other manufacturers as to infringe our patented rights, but experience reveals the **IMPERFECTIONS OF IMITATIONS.** And we therefore take it as a further compliment to the "SALEM" Bucket that some of its old patrons who were induced to try the imitations have now returned to the "SALEM" Bucket, thereby acknowledging it to be the most satisfactory. Don't be deceived by other makes of Buckets that are claimed to be "just as good." Insist upon having the **Original and Reliable Salem Bucket.** All legitimate Salem Buckets are plainly marked with the word **SALEM.**

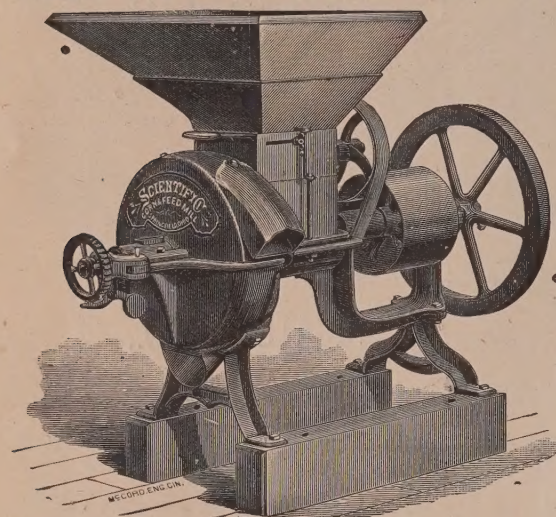
W. J. CLARK & CO., Sole Mfrs., Salem, Ohio.

THORNBURGH & GLESSNER, Gen'l Agents, Chicago.

SEEDS

THE ALBERT DICKINSON CO.,
Dealers in Timothy, Clover, Flax, Hungarian Millet, Red Top, Blue Grass, Lawn Grass, Orchard Grass, Bird Seeds, &c.
115, 117 & 119 Kinzie St. **POP CORN.**
Warehouses 104, 106, 108 & 110 Michigan St. **OFFICES, 115 KINZIE ST. CHICAGO, ILL.**

THE SCIENTIFIC GRINDING MILL.



—THE—
BEST MILL

—ON—
EARTH
FOR GRINDING

Ear Corn, Shelled
Corn and all
Small Grains.

Grinding Plates a
special metal hard as
Steel. Have double
capacity, as they

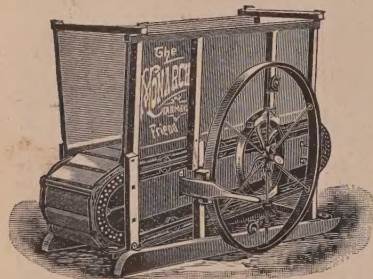
Sharpen Themselves
on being reversed.

FULLY GUARANTEED.

THE FOOS MANUFACTURING CO., Springfield O.,

SEND FOR ILLUSTRATED CATALOGUE.

Something New! ELEVATOR HORSE POWERS.



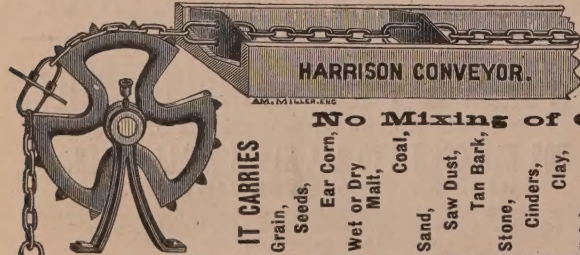
These Powers are
Built Especially for Elevators!

There has been a long-felt want for a practical and cheap Power in the Elevator line, and many years of experience in the manufacture of **HORSE POWERS** enables us to produce a Power which is conceded by all to be the best for this purpose. We make two styles—Adjustable Elevators and Stationary.

It Requires No Attention.
It has a Perfect Governor which makes the Motion as Steady as an Engine.

Write for Circular and Price List.
MORTON MANUFACTURING CO., - ROMEO, MICH.

CLEAN WORK!



**ALL WROUGHT
IRON.**

HARRISON CONVEYOR.

No Mixing of Grain.

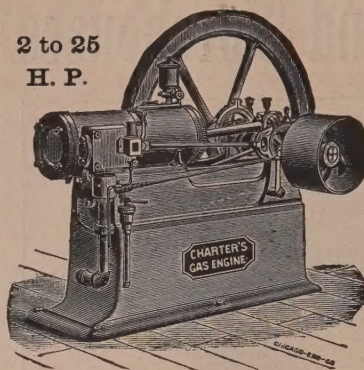
IT CARRIES
Grain, Seeds, Ear Corn, Coal, Saw Dust, Tan Bark, Wet or Dry Malt, Sand, Stone, Cinders, Clay, Bricks, Boxes, Blocks, Packages, Paper Pulp, Cotton Seed, Etc., Etc.

SEND FOR CIRCULAR AND PRICE LIST.

BORDEN, SELLECK & CO., Gen. Agts., 48 & 50 Lake St., CHICAGO, ILL.

CHARTER GAS ENGINE.

2 to 25
H. P.



The **ONLY ONE** that
Makes Its Own Gas from Gasoline,
So it is Independent of Gas Works and
Machines.

Furnishes Power at cost of about one cent per hour to each indicated H. P. For Grain Elevators and all other purposes it is **UNEQUALED.**

Send for Circulars and Description.

WILLIAMS & ORTON MFG. CO.,
400 Locust St., **STERLING, ILL.**

**WIRE ROPE TRANSMISSIONS, PORTABLE
MILLS, PULLEYS, SHAFING, HANGERS,
GEARING, ETC., ETC.**

SPECIAL NOTICE

WE MAKE A SPECIALTY OF

STEAM OUTFITS FOR ELEVATORS AND MILLS,

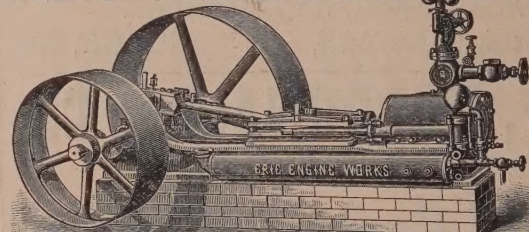
And carry in store the largest line of

**ATLAS ENGINE AND STEEL BOILERS.
RUBBER AND LEATHER BELTING,
DODGE PULLEYS AND SUPPLIES,**

To be found in the West. Write us or call for estimate before you buy.

ENGLISH, MORSE & CO., 1221 & 1223 Union Ave., KANSAS CITY, MO.
(Near Depot.)

SIOUX CITY ENGINE WORKS SIOUX CITY, IOWA,



**BUILDERS OF
CORLISS AND
SINGLE VALVE
Automatic Engines,
20 to 500 H. P.**

**Elevator Steam
Plants and Boilers
A SPECIALTY.**

LARGEST ENGINE WORKS WEST OF THE MISSISSIPPI.

Elevator Circulars Free. Send for Circular E with Plans and Specifications.

James Deal.

E. B. Freeman

JAMES DEAL & CO.,

ARCHITECTS, CONTRACTORS & BUILDERS

GRAIN ELEVATORS,

PEORIA, - - - ILLINOIS.



CAMBRIDGE ROOFING CO.,

—MANUFACTURERS OF—

Crowl's Patent Standing Seam,

Plain Rolled, Roofing,

Corrugated Siding

—AND— and Ceiling.

Crimped Edge, Made of Steel and Charcoal Iron, awarded first medal by the New Orleans Exposition.

Cambridge, Ohio.

E. LEE HEIDENREICH,
FORMERLY WITH J. A. McLENNAN.

J. A. DYBLIE,
CH'F ENGR CHICAGO A. L. & P. Co.

E. LEE HEIDENREICH & CO.,

CONSULTING ENGINEERS ON GRAIN ELEVATORS.

Telephone 823.

Office: 101 Metropolitan Block, Chicago, Ill.

Estimates and Outlines of Manufacturing Establishments, Motive Power Plants, Examinations, Reports and Repairs of Storage, and Warehouses, Experts in Heavy Structures and Foundations.